A CHILTON PUBLICATION

the Iron Age

E NATIONAL METALWORKING WEEKLY

August 20, 1953

UNIV. OF MICHIGAN

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AUG 21 1953

EAST ENGINEERING
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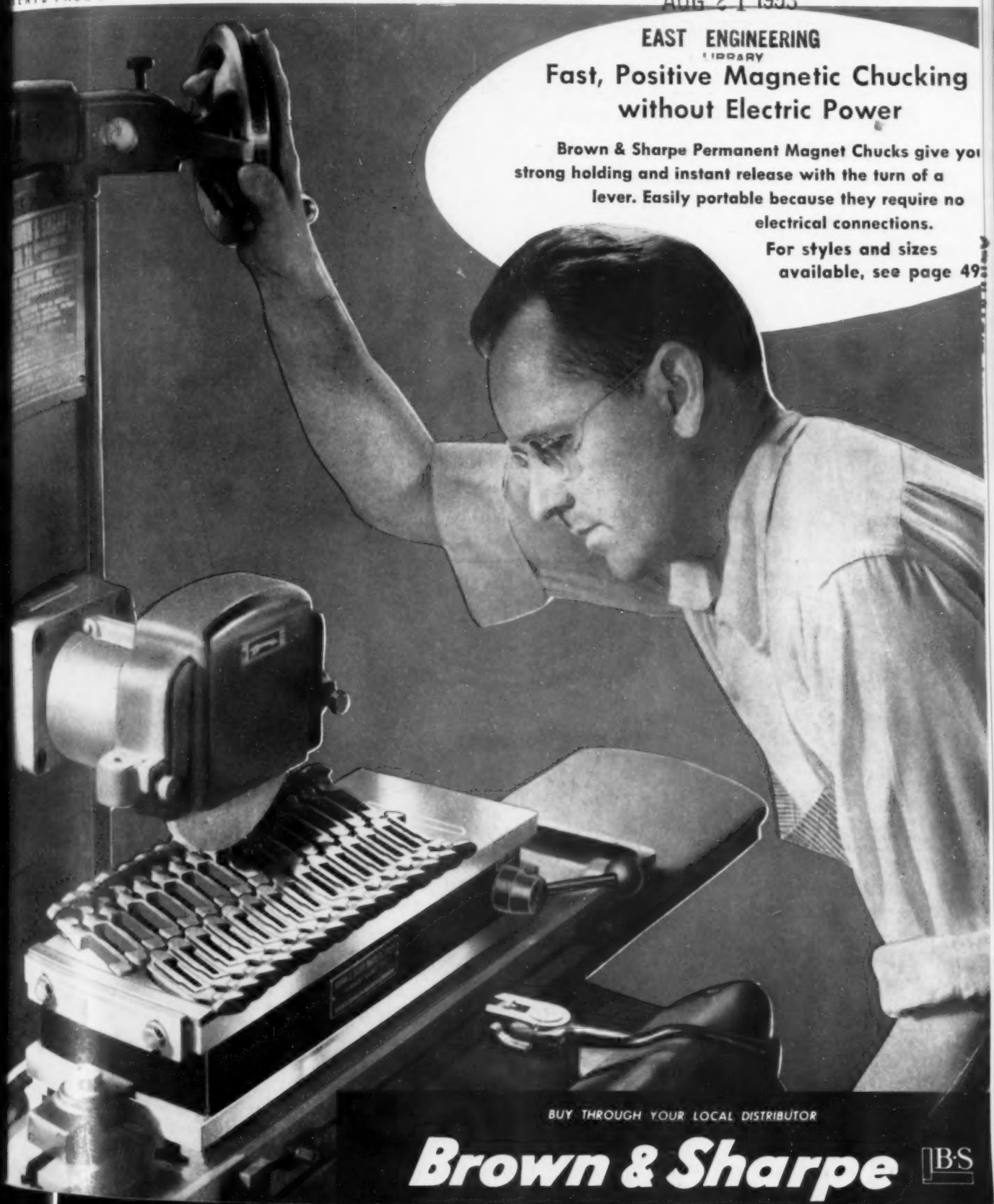
Fast, Positive Magnetic Chucking without Electric Power

Brown & Sharpe Permanent Magnet Chucks give you strong holding and instant release with the turn of a lever. Easily portable because they require no electrical connections.

For styles and sizes available, see page 49



BUY THROUGH YOUR LOCAL DISTRIBUTOR

Brown & Sharpe B·S

Lighter . . . faster Rotor grinders

"PAID OFF" in 48 days

JOB: Grinding welds on truck cabs. Using slow, 20-pound electric grinders. Only 2800 r.p.m. under load.

SOLUTION: Rotor Application Engineer suggested changing to Rotor 6" Air Grinders that weigh only 9¾ pounds. Speed 5300 r.p.m. under load.

RESULTS: Stepped up metal removal, increased wheel life. Lower maintenance. Cut man-hours per cab. Savings "paid off" cost of Rotor Grinders in 48 days—on basis of 50% use factor.

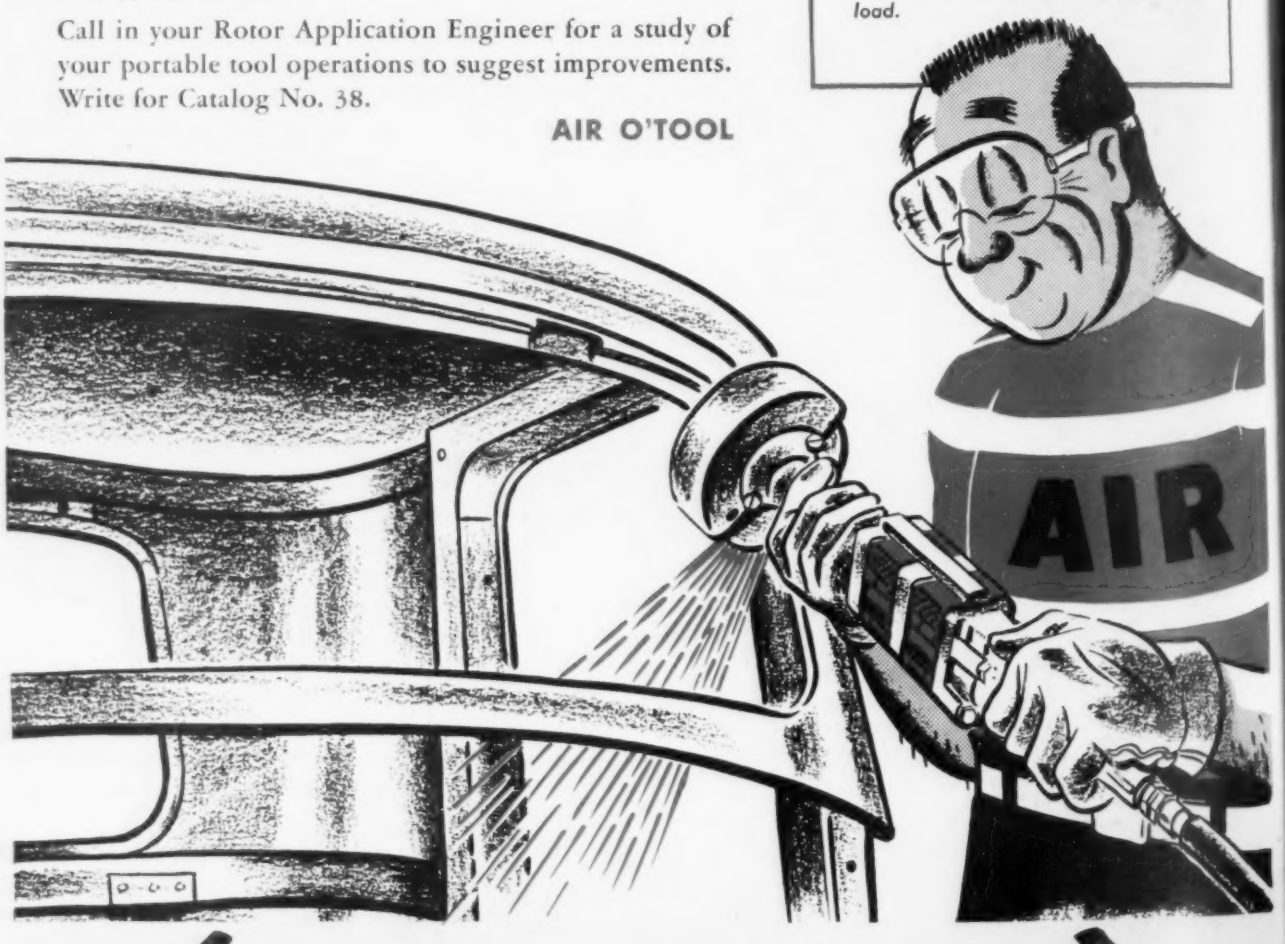
Call in your Rotor Application Engineer for a study of your portable tool operations to suggest improvements. Write for Catalog No. 38.

AIR O'TOOL

ROTOR GRINDER FACTS

LIGHTER . . . Unique two-blade design and magnesium handles. Easy to move around. 6" Rotor Grinder weighs only 9¾ lbs. . . . 8" only 11¼ lbs.

FASTER . . . Rotor Grinders, known as the "Power Plus" line are recognized everywhere for their high speed *under load.*



THE ROTOR TOOL CO.

CLEVELAND, OHIO

UNBIASED ANALYSIS OF PORTABLE TOOL PROBLEMS

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Tool Steel Topics

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

In the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Three types of tool steel solve most hot-work problems

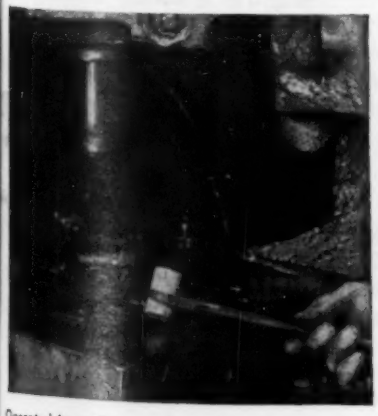
Hot-work tool steels which contain large amounts of either tungsten or molybdenum have high "red-hardness." In other words, they withstand very high operating temperatures without softening.

Although these steels have excellent wear-resistance, they cannot be subjected to drastic water-cooling while in operation because this results in excessive "heat-checking." Caused by repeated thermal stress, this condition shortens their service life. The 8½-pct-molybdenum type (our Hot-Work 8) is better in this respect than the 9-pct-tungsten type (our 57 Hot-Work).

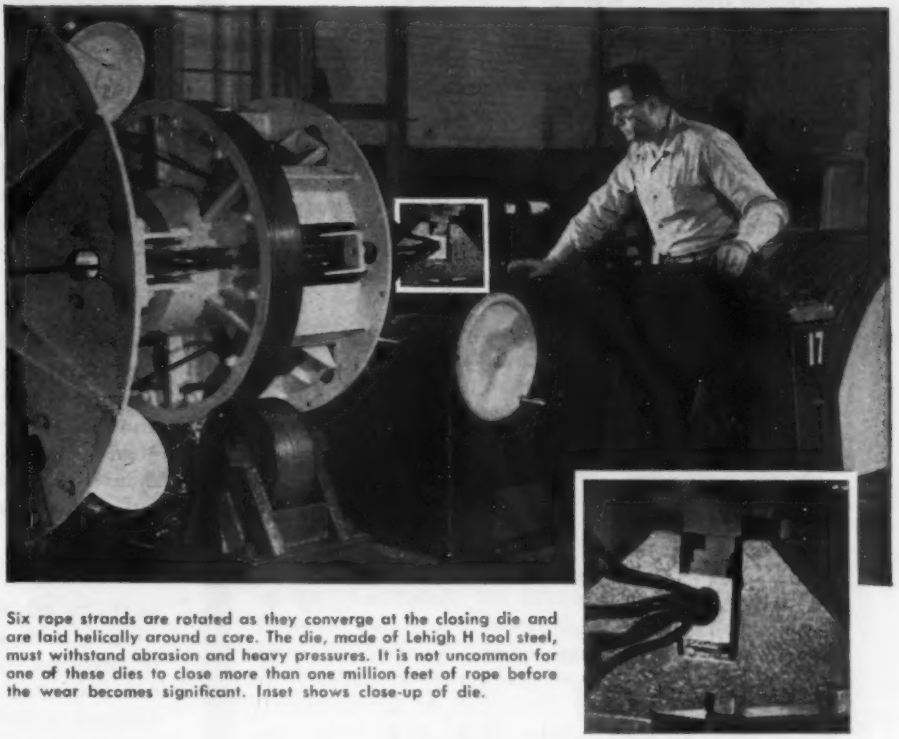
One way to prevent excessive temperature build-up, in repetitive operations where water-cooling is not used, is to provide duplicate tools which can be used alternately in the operation. This arrangement makes possible a longer cooling time between operations than if only one tool is used.

Whenever the nature of the hot-work operation is such that water-cooling of the tool is practical, it is often best to use one of the 5-pct-chromium types of hot-work steel—such as our chrome-moly-tungsten (Cr-Mo-W) and chrome-moly-vanadium (Cr-Mo-V) grades. The cooling prevents loss of hardness due to high temperature.

Although they have lower red-hardness, the 5-pct-chromium grades are good choices for tools and dies which involve both shock and hot-metal contact.



Operated in a 400-ton press, this punch is made of Bethlehem Cr-Mo-W tool steel. It extrudes steel slugs heated to 1950 F in the making of rock bits.



Six rope strands are rotated as they converge at the closing die and are laid helically around a core. The die, made of Lehigh H tool steel, must withstand abrasion and heavy pressures. It is not uncommon for one of these dies to close more than one million feet of rope before the wear becomes significant. Inset shows close-up of die.

Wire rope "closed" by long-wearing dies of LEHIGH H tool steel

One of the vital steps in the making of wire rope is the "closing" operation which arranges the rope strands compactly in a helical position around a core of either hemp or steel wire.

Closing dies are subject to considerable abrasion by the rotating strands as they converge at the die and pass through, at the same time being laid into accurate position. Lehigh H is ideal for this application because its high-carbon, high-chromium composition gives it extreme long-wearing properties. When the dies eventually become worn, they are usually refinished for use in closing rope of a larger diameter.

Made in two pieces, closing dies are machined to accurate size, heat-treated to a hardness of about Rockwell C-61; then they are ground and polished to avoid damage to the wearing surfaces.

Because of its air-hardening characteristics, Lehigh H is subject to only the minimum amount of distortion during heat-treatment—an important feature wherever accuracy is essential.

BETHLEHEM TOOL STEEL ENGINEER SAYS:

Avoid sharp-cornered keyways

Keyways with sharp corners are the cause of many shaft failures. Fundamentally, this type of breakage is a fatigue-failure due to excessive stress-concentration at the sharp corners.

The cure for failures of this kind is to make keyways of half-round design and use a round key in the assembly.

Of course, the fact that stresses are low often prevents the failure of shafts with square keyways; and so this design continues to be used. But that does not alter the fact that a square keyway on a shaft is a basic design fault.

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DIGEST of th

NEWS DEVELOPMENTS

FIRE GUTS GM PLANT, AUTO LAYOFFS BEGIN—P. 58
Fire swept through General Motors Detroit Transmission plant last week, causing total ruin and loss of life. GM, driving for an output record this year, felt the loss and mobilized its resources. Movement will begin back to a plant formerly used for transmissions. Layoffs began almost immediately in auto plants.

AWAIT ODM DECISION ON NICKEL DECONTROL—P. 62
Office of Defense Mobilization is still struggling with the problem of whether to decontrol nickel. Allocations and end use restrictions are the main considerations. Most nickel users, including both the steel and auto industries, would like to see use restrictions dropped but are uncertain on rationing.

SURFACE ROUGHNESS TESTS CUT MACHINING—P. 63
Testing surface roughness has been getting increasingly scientific. One new measuring device, called Surfindicator, operates on the phonograph principle. A diamond stylus on an manually operated pickup moves across the peaks and valleys of machined surface. It saves considerably on machining costs.

HOW ELECTROMET USED HUMAN ENGINEERING—P. 67
Like many large companies, Electromet has found that people are the most important factor in a new plant. That's why it made human engineering a primary consideration when it built its new $100 million ferroalloy plant in Ohio. Many industrial pitfalls were avoided by long range personnel planning.

DETROIT SEES NO QUICK HELP ON NICKEL — P. 72
Automakers had been hoping for a lifting of nickel restrictions on Oct. 1. But the general feeling now is that the curbs will remain in effect for some time. Reason is the government's decision to continue stockpiling the metal, rather than direct defense demands. No quick improvement on auto brightwork is seen.

SEE HARD FIGHT ON TAFT-HARTLEY CHANGES—P. 77
Secretary of Labor Durkin's substantial changes of the Taft-Hartley law won't be won easily, if at all. Many congressmen fear suggested revisions spell out a return to the Wagner Act and are determined to block any move to weaken the existing law. Distress areas get low bid priority for government work.

the Week in Metalworking

ENGINEERING & PRODUCTION

TOOLING INNOVATIONS SPEED PRODUCTION—P. 125
Several unusual machines have been developed by Vard, Inc., makers of highly specialized aircraft parts. By modifying and adding to standard machine tools and by developing new designs, this company has solved unusual production problems. Included are an hourglass worm grinder, miller, borer.

PROVING MATERIALS FOR NUCLEAR POWER—P. 129
New and more critical methods have been devised to test materials for nuclear power plants. A combination of exceptional mechanical properties and good nuclear characteristics is a must. Corrosion testing in liquid metals is done in progressive steps. Some tests are performed in reactors.

HOW NOT TO DISTORT PIERCED HOLES—P. 134
Holes pierced in blanks before bending may be distorted if they are too close to the bending area. Distortion can be minimized by piercing a small auxiliary hole in the bending line. Punching out a segment around a round hole can also minimize distortion. In some work piercing must be done after bending.

POLISH ZINC DIECASTINGS AUTOMATICALLY—P. 136
Zinc diecast door handles for cars are prepared for plating efficiently and economically by polishing in an automatic machine called a Gyro finisher. It uses a mixture of ground corn cobs, 30 pct moisture, a powdered abrasive and a detergent. About 2000 handles are polished per hour.

COATED FLEXIBLE TUBING WEARS LONGER—P. 140
Neoprene-impregnated flexible tubing has replaced sheet metal in fast-wearing sections of a chip disposal system. Use of coated flexible tubing has cut down abrasive wear from hot cast iron chips moving at high velocity. It also resists attack by cutting oil. Some sections are still going strong after two years.

NEXT WEEK—TRY HIGH SPEED MOTION PICTURES
High speed motion picture photography can save time for your engineers, spot obscure causes of machine malfunctioning. Put to work at Lockheed Aircraft, this research tool has helped improve operation of an impact extrusion press, a rivet machine, solved an unusual flash welding problem.

MARKETS & PRICES

HOW REDS SCUTTLE STRATEGIC TRADING BAN—P. 55
While outright across-the-border smuggling of strategic goods to the Reds has grown unpopular, Russia and cohorts have devised many devious means to get supplies by underground routes. As a sequel to a story published in May 1952, Iron Age correspondents have rounded up a full account of how the Reds trade.

WHY EUROPE LOOKS TO THE EAST FOR TRADE—P. 56
Shocking as it must be to Americans, the European urge to trade with Russia, satellites, and China is intensifying. Europe regards signing of the Korean Armistice as a signal to begin wriggling clear of the American-imposed ban on strategic trading. Iron Age lists arguments Europeans are advancing.

BUYERS CAUTIOUS ON STEEL INVENTORIES — P. 57
Midwest purchasing agents are being more cautious in steel procurement. Some adjust buying to a rate lower than current production. But they stress they expect output to stay high, are adjusting inventories, not retrenching. While buyers are still pushing for some steel, they see easier supplies almost here.

INDOOR WEATHER TO HIKE VIDEO SET OUTPUT—P. 61
Producers of video sets see brisk business ahead as fall and winter draw the public indoors. There will be plenty of sets on the market. In the first half this year the industry broke all records. Dealers are pushing two sets per home. Big screens are gaining. How color will affect the television market.

WHAT COMPETITION MEANS TO YOUR PLANT—P. 85
The return of tough competition means a new need for industrial efficiency. Lower operating costs, higher productivity are musts. Don't expect price-cutting to do the job, even where generally slim profit margins permit it. Outlook is for continued high demand, employment. Recession talk doesn't add up.

STEEL BUYERS RETURNING TO DRIVER'S SEAT—P. 149
Steel purchasing agents are convinced that a buyers' market, if not here already, is just around the corner. Shift in supply-demand relationship, already gaining momentum, will be speeded by Detroit Transmission disaster. But steel business will continue good, and production estimate of 112 million tons still holds.

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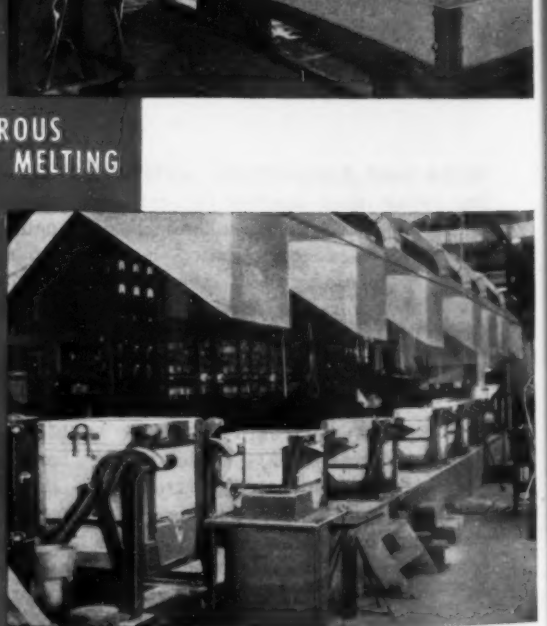

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Let's Recheck Our Atomic Thinking

MALENKOV'S boast that we no longer have a monopoly on the H bomb should shatter wishful thinking in this country. Recently there has been a tendency to let down our guard and see things as we wish they were—not as they are.

Many people and writers have gone out of their way to argue that Russia hasn't the H bomb nor the resources to build it. Even if this were true it is beside the point.

The Soviets had the A bomb secret—and the bomb itself—long before many of our military people were ready to believe it. Our national tendency to feel we have the best, the biggest and the brainiest of everything often blinds us to the fact that the Russians are not exactly stupid. We have more A bombs than the Russians. We may have some H bombs. But what are numbers?

Democratic nations will not start a preventive war. That leaves the Communists to call the turn. If they think use of atomic weapons will give them what they want they will use them when that time comes.

Some of our people deride Russia's ability to have atomic secrets, weapons and the economy to support A bomb and H bomb manufacture. This is sheer folly when you recall that:

¶ For years Russia has had advice and research from kidnaped German scientists. They are well versed in nuclear physics and chemistry.

¶ Fuchs and the Rosenbergs supplied plenty of industrial information on A bomb manufacture and H bomb theory to the Soviets.

¶ Russia has at least 15 million slave laborers among whom are scientists and research workers. In a dictatorship you do what you are told or else. Costs don't matter.

¶ Assuming that the Russian people are ready to rise up and throw out the Communist dictatorship is dangerous thinking for us.

It is time we faced the fact squarely that the Communists are catching up with us in the atomic race. When we accept that we will know we can't afford to let the appeasers in our midst soften us up for a final Soviet blow.

As terrible as it sounds we must keep the lead in the atomic race—and do some real thinking about atomic defense. Let's not tinker with the defense budget too far—or discount the military too much.

Tom Campbell

Editor

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Name_____

Title_____

(Please attach to, or write on your business letterhead)

Dear Editor:

Letters from readers

Tool Steel Directory

Sir:

We have found your Directory of Tool Steels of considerable help to us in our work as a reference material.

We have found the SAE H11 Hot Work Steels best adapted to our needs and have so specified them in our published material. However, both last year and again this year, you indicate No. 345 as being available through Carpenter Steel Company. Their representatives advise that it is no longer made and they suggest No. 883, but we do not have results with No. 883 comparable to the other steels shown.

The purpose of my letter is to bring this to your attention so that No. 345 can be considered for elimination in future issues under the heading of ASM class IV-B Hot Work Steels.

It is also noted that you have omitted H.C.A., Halcomb No. 236 and Thor brands but have retained B.D.C., Kalkos and W.W. Hotwork which are comparable.

Personally I like the change in the 1953 Directory as compiled with SAE standards for reference and use it daily. We recently purchased a supply to be used by our representatives.

J. P. HEALEY
Vice-President

Nasco Products, Inc.
Kelvindale, Mich.

Gold Plating Process

Sir:

We would like to obtain six tear sheets of the article "New Plating Process Expands Industrial Use of Gold" which was published in the June 25th issue.

D. H. SMITH
Development Engineer

General Mills, Inc.
Minneapolis, Minn.

Diamond Grinding Wheels

Sir:

This is in reference to an article in your July 30th issue, page 37, about the Belgian Tool Company's new process for the manufacture of diamond grinding wheels. In reading this article, I understand that the Ohio Metalworking Products Co. of Cleveland has perfected or has used diamond wheels which are of a tremendous advantage over present day grinding wheels, as we know them.

I would appreciate it if you would send me any available information that you may have concerning this subject. Since diamond wheels are expensive, we would definitely be interested in any means of reducing our overhead in this direction.

W. G. FITZGERALD
Purchasing Department

Heppenstall Company
Pittsburgh, Pa.

Additional information on the electro-nickel diamond grinding wheels may be obtained by contacting the Ohio Metalworking Products Co., 1836 Euclid Ave., Cleveland, Ohio.—Ed.

Cartoon Kick

Sir:

We all had a tremendous kick out of the little cartoon in the July 16th issue—"The heck with cops and robbers, let's play board of directors—that's lots noisier."

I would like very much to reproduce this for distribution to my membership and if I may have the privilege and the original is available, I would appreciate using it.

R. M. SEABURY
Secretary-Treasurer

Drop Forging Association
Cleveland, Ohio

Tough Rolling Jobs

Sir:

I have read with interest the article appearing in the July 30th issue of your magazine entitled "Rolling Firm Likes Tough Jobs." As there is no indication to where this concern is located, we are wondering whether or not you can supply this information.

C. W. EVANS
Alloy Steel Division

Republic Steel Corp.
Massillon, Ohio

The company referred to in this article is the American Silver Co., 36-07 Prince St., Flushing, N. Y.—Ed.

Wilkes-Barre's Expansion

Sir:

I am a subscriber and read with interest your article entitled "Expansion—Wilkes-Barre's Build-Up Plan" which appeared in the July 16th issue. I would appreciate your sending me three additional copies of this issue.

J. M. MILES
Vice-President

Eastern Pennsylvania Supply Co.
Wilkes-Barre, Pa.

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10 Delivery is good. Cost is too.

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SYLVANIA

Lighting, Electronics, Radio, Television.
Sylvania Electric Products Inc.

How Sylvania Electric cut cleaning costs 52.8% with Pennsalt Cleaners

A striking, although not unusual, example of the value of Pennsalt Cleaners comes from the Radio and Television Division of Sylvania Electric Products Inc.

In its Buffalo plant, this Division stamps out thousands of steel radio and TV chassis and other miscellaneous parts every day which are then zinc plated. After a survey of the plant, the local Pennsalt representative suggested that two Pennsalt Cleaners could definitely reduce cleaning costs in the plating operation.

After a test, the Pennsalt cleaners were adopted, and these were the results of the change:

1. Total consumption of cleaners was reduced in each four-week period from 2700 lbs. to 2140 lbs. including make-up schedules.

2. Previous cleaners cost $432.00 a month. The Pennsalt products run $204.78 a month—*a 52.8% saving.*

3. The Pennsalt Cleaners removed stamping oils and shop grime with equal or greater effectiveness than the previous cleaners and were in every other way completely satisfactory.

Here is a brief introduction to the two products that performed this notable cost-cutting feat: the first Pennsalt Cleaner is a concentrated, extra-heavy duty soak or immersion tank alkaline cleaner with exceptional emulsifying powers. The second Pennsalt Cleaner is an alkaline electrolytic cleaner specially compounded for removal of heavy smut deposits when used in reverse cleaning cycle.

The extensive Pennsalt Cleaner line includes products for virtually every type cleaning operation, and Pennsalt specialists have vast experience in properly applying them.

No matter how effective or economical you believe *your* present cleaners to be, there is a very good chance that a saving similar to Sylvania's can be made in your plant with Pennsalt Cleaners! Contact your Pennsalt representative today or write:

PENNSYLVANIA SALT MANUFACTURING COMPANY
Metal Processing Department
399 Widener Bldg., Philadelphia 7, Pa.

Pennsalt Chemicals

Fatigue Cracks

by William M. Coffey

Definitions

We have let this department rest awhile. However, more definitions are being received from time to time and we'd be derelict in our duty if we didn't pass them along. Here are some sent in by Barbara A. Runkle, Secretary to the Chief Metallurgist, Mr. C. F. Robards, of the Cadillac Div., General Motors. Miss Runkle says these are commonly used in the Metallurgical Field.

"A program"—Any assignment that can't be completed by one telephone call.

"A conference"—A group of people with no information who get together to pool their ignorance.

"A clarification"—To fill in the background so detailed that the foreground goes underground.

"To break down by categories"—To put in separate piles.

"A survey is being made of this"—We need more time to think of an answer.

"Note and Initial"—Let's spread the responsibility for this.

"Give us the benefit of your present thinking"—We'll listen to what you have to say as long as it doesn't interfere with what we've already decided to do.

"Will advise in due course"—If we ever figure it out, we'll let you know.

"Research work"—Hunting for the guy who moved the files.

"Point up the issue"—To expand one page to fifteen pages.

Letters

Received this letter recently:

Dear Sir:

I was born in England 28 years ago. My parents and sisters are normal size. I grew normally until I was 15 years old; then I grew very fast until my present height is 9' 3"; my weight is 465 lbs. A ring I wear on my second finger is that large that a half-dollar can pass through without touching the ring. All the clothes I wear must be made to order.

—Ted Evans

An explanatory letter came with this from the Gales-Rojac Corp., sales promotion company, which says Ted Evans may be used on television, radio or in any agreeable way you desire. We're hiring this boy. Going to send him around to those two or three people each month who don't renew their subscriptions.

Puzzlers

Rigging the farmer's power line brought many grunts and groans, but only three correct answers. The answer is either 16 2/3 ft from the house center line or 33 1/3 ft from the barn center line. The winners: Don Jacobson, A. L. Raich (who did a really splendid job on the marble puzzler, too—*A. L. complained about going unrecognized on the marble puzzler)* and Mr. Rice. All you have to do, amigos, is locate the house at point 10 ft on the other side of the road. Then locate the desired point to hitch up the power line by drawing straight line from new position of house to barn. Leave us go on to the next class. (Sure hope this is right.)

Many more readers were in tune with the spider problem which appeared in the July 30 issue. Answer: 50 feet. Winners: B. R. Baldwin, W. G. Perin, M. H. Thomas, W. L. McIntire, Roger T. Smith, L. G. Bayrer, T. W. Khiralla, Doildeen French, John Hershey, Andy Lynch and Mr. Rice. Mr. Raymond Robinson also got 50 ft and has this advice for lazy spiders: *Drop vertically 10 ft, as any spider can, and crawl 44.7 ft to opposite corner. This will save 5.3 ft crawling and much worry about slippery walls.*

New Puzzler

Put yourself in the position of the prisoner who was given 10 white balls, 10 black ones and 2 boxes. He was told that the executioner would draw one ball from one of the two boxes. If it was white the prisoner would go free. If it was black—.

Problem: How would you arrange the balls in the boxes to give yourself the best odds for survival?

Bonus Puzzler

A man in Manhattan has a girl in the Bronx and another in Brooklyn. He can't decide between them so when he feels the need for companionship he goes down into the subway and gets on the first train that comes along. Trains leave for the Bronx every 10 minutes as do those for Brooklyn. At the end of the year he is surprised to find that he has been to Brooklyn nine times as often as to the Bronx. Can you explain how this could happen?

Illustration shows work entering METALWASH overhead conveyor-type washer used by the General Electric Company.

This METALWASH machine cleans stainless steel freezer compartment parts.

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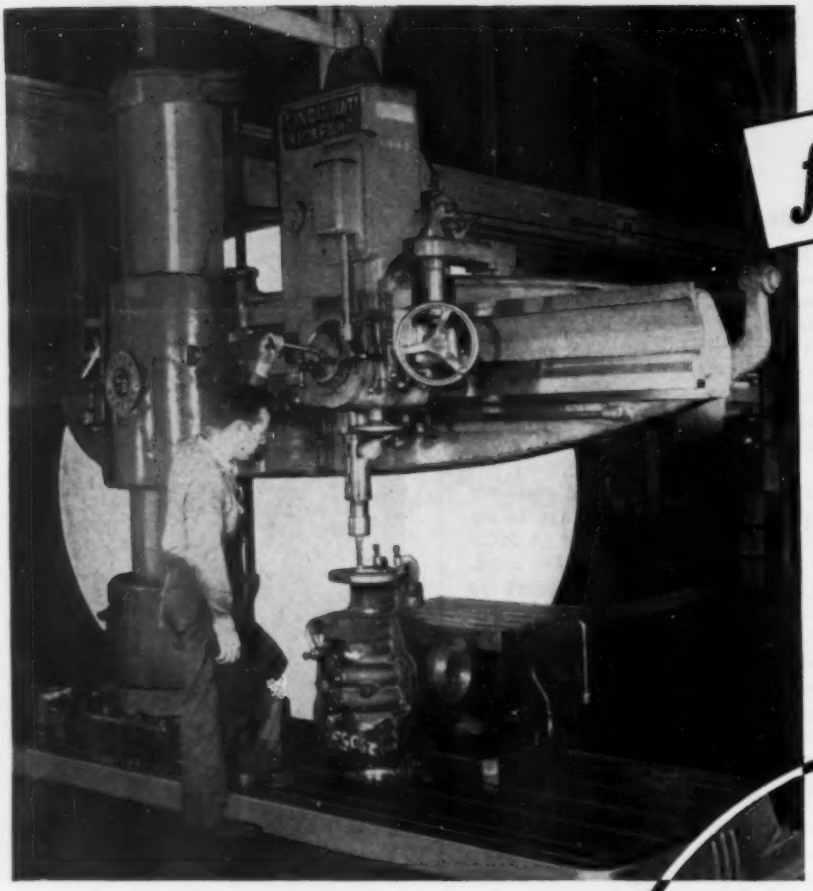

Photo—Courtesy Pacific Pump, Inc.

faster and easier... machine performance

Pacific Pump, Inc., say maximum production is the result of the faster, easier controls and fine balance of our 7′ arm, 19″ column Cincinnati Bickford Super Service Radial Drill. Here centrifugal pumps for process industries, utilities, and marine power plants, are being drilled, tapped, and spotfaced with speed and economy. Cincinnati Bickford Super Service Radial Drills will bring you too, maximum productivity at low cost.

Write for Booklet R-29.

Half shells for a centrifugal pump—approximately 100 holes are drilled—half of which are also tapped.

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THE IRON AGE Newsfront

COMPETITIVE STYLING RACE BUILDING UP in Detroit is bound to speed up new engine programs as well as new body designs. New trends in plastic models stand out in GM's 1954 line. Progress being made in both plastic tooling and plastic cars is the most carefully guarded secret in the auto industry today.

METAL FINISHERS SAY they are moving closer to a universal standard for gaging surface roughness. Development of standard calibration procedure and more sensitive measuring devices should eliminate guesswork and "fingernail" testing.

AUTOMATIC NUT TORQUING is a new twist in auto engine assembly. One plant is being tooled to use this feature on a new V-8 engine in 1954. First machines will tighten 10 main bearing screws on the engine block. It cuts costs, improves quality of work.

HOME BUILDING IN THE CHICAGO AREA seems to be moving ahead despite earlier predictions activity might taper off. Suppliers of sand and allied materials report the regular seasonal pickup is here with sales in good volume.

THE FARM EQUIPMENT PICTURE IS NOT ALL DARK despite layoffs by one major producer. Suppliers for at least two firms report increasing raw material sales with their customers indicating inventories of finished goods are satisfactory or even low.

SOME FABRICATORS ARE BEING PRESSURED by United Steelworkers of America to adopt the job classification system of large steel producers. The move is meeting resistance. Fabricators argue their operating problems differ from those of steel companies and imposition of same wage structure would not be equitable.

CERAMIC UNITS OF BARIUM TITANATE can now be substituted for crystals used in some Navy sound pickup devices. In some respects the units are superior to crystals. A commercially practical process for making the units is also reported to have been developed.

CARRYOVERS IN PROCUREMENT FUNDS will keep defense spending high despite Congressional appropriations cuts. Defense Dept. has about $72 billion in unspent balances above the $34.4 billion in new money voted for fiscal 1954. Foreign aid, Atomic Energy Commission, General Services Administration together have another $17 billion.

RECENT STRIKES IN FRANCE are playing directly in the hands of opponents of foreign aid because aid proponents can't prove the French are willing to help themselves. French steel industry, with relatively low output per man could stand a strong dose of technical assistance--if the French were willing to listen.

ALUMINUM POWDER IN A SPECIAL PLASTIC VEHICLE has given improved corrosion resistance to heat transfer equipment in areas where cooling water is corrosive, it is reported. Metallic particles comprise about 85 pct of the mixture's volume. Plastic seals off metal-to-metal contact.

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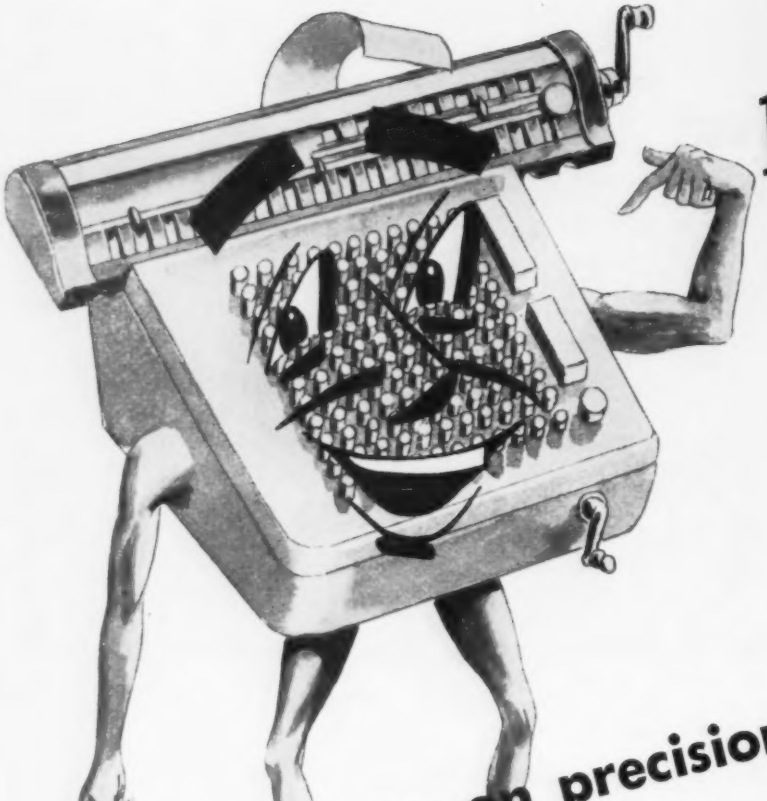

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and it counts on precision rolled CMP THINSTEEL cold rolled strip steel

assures accurate and uniform components

In business machines, often very intricate assemblies of component parts, CMP THINSTEEL is helping to reduce end product cost. The efficient functioning of such equipment depends on the accuracy to size of many internal parts. The labor cost of assembling such parts may be the big item of cost. Once assembled, the machine must operate smoothly. The best insurance against machine failure is the use of the best raw material for component part manufacture. Experience shows that the best strip steel for accuracy and uniformity is CMP THINSTEEL. Try it for size.

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RUSSIA: How It Scuttles Our Trading Ban

Ban has more holes than Swiss cheese . . . Underground supply lines to Russia, China continue to operate . . . List routes, deceptions Red traders use to beat the shipping ban.

Cloak and dagger smuggling of strategic goods to Russia, China, and cohorts has grown unpopular in Europe. European governments fearing American displeasure and cutbacks in Mutual Security Agency aid have taken steps to catch flagrant violators of the embargo. While official statistics show trade with the Reds is now confined to non-strategic goods, Europeans know strategic products go underground. (See IRON AGE, May 22, 1952.)

Overseas, it is argued that an embargo so susceptible to violation is better abandoned. Our attitude is that whatever measure denies the Reds some portion of their war needs or costs them dearly is a sound one. IRON AGE correspondents have rounded up the history of Russian underground supply lines and details of their operation.

Border Guards Tightened

In 1948-49 illegal trade with the East was carried on by smugglers. Along the Iron Curtain border well-organized gangs shipped the Reds everything from precision tools to locomotives. That period was the summit point of illegal East-West trade, which has tapered off since then.

But European governments tightened up border guards, discouraged outright smuggling. This led to development of the more gentlemanly strategic goods underground. Briefly listed by IRON AGE the most important routes are:

(1) **Berlin**—This city may have two masters but traffic between the sections is difficult to control. Goods arriving in West Berlin are shipped by railroad to the communist zone. In 1951 a Berlin company ordered a small steel plant worth $1.3 million. Put on the rails, it somehow disappeared—53 carloads of equipment.

Today, this route is still a pipeline for ferroalloys from West German producers, rubber, copper.

(2) **INTRAC**—Russian trading agency at Vienna—buys openly in western Austria under no legal restrictions. INTRAC can get sealed box cars from any European country to Danube port or railway sheds. From there, on train or barge they go into the communist heartland. Value of goods handled by INTRAC was estimated at $20 million for the first half of 1953. Russian-controlled factories in Austria shipped another $15.4 million worth of goods.

INTRAC handles tools, including gear testers, small shapers, lathes, drills, radar equipment, cold rolled sheets. It buys alloy steels and early this year received two carloads of plastics made by a U. S. firm.

(3) **Free ports**—The Portuguese island of Macao off the China coast, Tangier, North Africa, are notorious for their strategic goods traffic. Even American-made steels, tools are diverted to Russian ports or across Europe to the East.

Favorite deception is to "innocently" sell to an European trading agent of the Reds. Strategic goods are also rejected by a "customer" in Europe, whereupon another buyer steps in to get the shipment for the Reds. A great many trading firms have been blacklisted. Their sole customer now is the East.

(4) **Forged certificates**—Russian agents forge certificates of European governments, licensing trade with the East. The racket involves falsifying government certificates which testify goods in question are non-strategic.

A prime mover here was Jacob Maruga, Rumanian commercial attache at Berne, Switzerland, who left Italy after a police investigation of an exporting firm in Milan, now closed. His supply list included industrial diamonds, copper, alloying materials, plastics, radio equipment, precision tools, measuring equipment. Even American high-manganese sheet steel reportedly found its way to the East through the use of false documents and devious shipping routes, eventually winding up as Russian helmets.

Red China buys strategic goods

Big Joke in Portugal

Heavily embroiled in commerce with Red China through its China-sponsored island, Macao, Portugal ships out strategic and other goods but sometimes brings back some commodities vital to operation of the Free World's war machine. Among these are Chinese tungsten and ricinus oil.

The joke in Portugal, possibly to laugh away guilt feelings, is that while the United Nations was fighting China it was doing so with Chinese tungsten to strengthen war steel and ricinus oil to lubricate jet aircraft engines.

Not such a joke in Finland are plants that are assembling metalworking products and equipment for Russia. Many of these plants got their start when Finland had to pay reparations to Russia.

TRADE: Why Europe Looks to the East

Pressure to ease embargo on strategic goods shipments to Russia will grow . . . How Europeans think . . . Loss of U. S. aid will sharpen need for Communist markets.

Shocking as it must be to Americans, the European urge to trade more substantially with Russia, its satellites, and China is intensifying. European manufacturers, merchants, governments — non-communist elements for the most part —regard signing of the Korean Armistice as a signal to wriggle clear of American imposed embargoes on East-West trade in strategic products.

From many reports by IRON AGE correspondents a common denominator of European thinking is evident that runs contrary to American opinion on trading with the enemy.

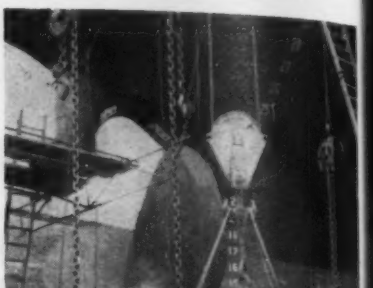
"Forced to Trade"

Europeans claim they cannot tailor their actions to suit the logic and ethics of America. Given a different set of circumstances than America's, Europeans must necessarily arrive at a different solution. They say America has a rich, dynamic economy with a large market within its own borders while Europe has a faltering, precarious economy with a too-small market that must be expanded.

Asked by an IRON AGE correspondent why he wanted to trade with the Reds, one European said: "We are forced to resume traditional markets to sell growing surpluses and reduce our dollar deficit. It means survival to us. Also we are not as panicky as Americans over the communist threat."

Not long ago at a trade discussion among Free World European and Red countries a unanimous vote was cast recommending abolishing all restrictions on East-West trade by June, 1956. Part motivation for that vote, only a recommendation, were the cutbacks in U. S. cash and machinery aid to Europe. By 1956 U. S. assistance is expected to be piddling while now it is largely limited to military shipments, off-shore procurement.

The suasion of American aid has thus far muted any mutterings against U. S. restrictions on strategic trade. To avoid blacklisting by the U. S., many European traders have been channelling strategic goods via an underground route to Russia and China. (See THE IRON AGE, May 22, 1952 for expose on this situation.) Since America is unlikely to abandon the idea of curbing strategic trade until a firm basis for peace is reached, European resentment will grow.



NEEDED 16,500-LB PART for this Panamanian tanker was flown from New York to Milan to save time, then installed in Genoa.

Espionage in Trading

Now faced with surplus production resulting from U. S. rehabilitation of industries, Europe is looking East for markets. Japan on the other side of the world is looking to China and has firmly expressed its official determination to trade.

Desperately in need of markets, Europeans remember that the East has for centuries been a major selling area, now partially lost because of the cold war.

Europeans, sullen sometimes under American leadership which they believe can lead to the third World War, like to point out the flaws in the U. S. embargo. Instead of legitimate commerce in such strategic items as machine

Special Report

Continued

through its Chinese National Export & Import Co., Zurich, Switzerland. China has reportedly purchased in Europe such strategic items as diamond dies, armor plate, gun barrel steel, machine tools.

A Dutch trader told IRON AGE Red China had bought in the first half of 1953 at least $70 million worth of strategic goods. Making shipment possible were many Russian, Czech, Polish, Panamanian, Liberian, Costa Rican freighters sailing to the Far East.

Captains of Red freighters have orders to substitute bills of lading freely. For instance a shipment of armor plate is easily listed as boiler plate. Parachute materials are tagged as silk textiles and machinery parts as steel scrap. Goods are ordered by a North African port, shipped from Europe but sail directly to a Russian port.

IRON AGE has learned that Russians serve as trading agents for eight Near East countries. Bought in the name of those countries arms, and ultra-strategic goods are detoured to Red territory.

In Europe today, openhearth steel items such as rails, bars, plates, strip are listed as strategic, may not be shipped East. But mild steel (Bessemer) is non-strategic. One pertinent question can be asked: How can a customs officer identify openhearth from mild steel?

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tools, they say, there is a large bootleg trade.

Anti-American feeling grows while the Reds extend their espionage network by squeezing information from the hundreds of merchants working for them. Russia, they claim, is getting pretty much of all it needs and must pay only a 3-5 pct extra charge.

The main purpose of the strategic embargo was to undermine communist war production and potential, Europeans point out. Has this been accomplished? Europeans do not think so, scoff at Europe's NATO forces as being vastly inferior to the Reds'. They claim failure to trade freely with the East has done the West more harm than good—all debatable points.

At Geneva, trading experts told IRON AGE that when the embargo was dropped, Russia and European satellites would be able to absorb $550 million worth of West European goods. This amount is expected to increase gradually. In return, Europeans could trade outside the dollar area.

What Reds Will Buy

From Geneva's trading conference and other sources, THE IRON AGE has been able to compile an abbreviated list of the commodities Russia wants immediately:

Mica, all plastics, large amounts of fiber plastics, nylon, stainless steel tubing, wire, strip steel, automatic bending machines, grinders, wire machinery, ferromolybdenum, ferrocobalt, diamond dies, industrial diamonds (a keen interest here), cables, some chemicals, carbide and carbon tools, certain high speed steels, roller bearings, silicon briquets, electrodes, fork lift trucks of practically every kind, which are exceedingly popular in Russia, small hydraulic motors, medium presses, boring mills, truck batteries, heat treating equipment, hacksaw blades, metal powders, especially carbonyl iron, certain refractories. Interest in light metals has been reported waning.

Recently an agreement was signed between British industries and Red China officials with Germans serving as go-betweens.

INVENTORY: 'Caution' Is Buying Byword

Purchasing men in Midwest put stiffer dose of caution into procurement . . . Some adjust buying rate below output . . . See easing in steel . . . What trends are—By *K. W. Bennett.*

Midwest purchasing agents are sitting pretty on well-stocked inventories and are putting a stiffer dose of caution into their procurement policies.

No longer worried about steel supply, unpanicked by defense cutbacks, many PA's are adjusting buying to a rate lower than current production. Maintaining that they expect production to stay heavy, industrial buyers indicate that any reduction of their spending pace is more inventory adjustment than any drastic retrenchment.

Vacations Pile Up Stocks

The exception seems to be tank producers and other users of light plate. So tight now even foreign steel gets a small share of the market, light plate is expected to ease after November. Similarly, structurals may be slightly easier and a little more tonnage has become available. But the average purchaser needs far more than he's getting and expects little real help before early next year.

Where plants shut down for the 2-week summer vacation, purchasing men continued to take raw materials deliveries, with the result that their unfinished goods inventories rose considerably. Consequently, raw materials and components ordering has been affected. Steel, though, must still be pushed by a good percentage of purchasing men—on some items.

"Some order, eh Maxwell?"

For instance, one metalworking plant has cut back most purchases, but is pushing for delivery on steel it has ordered. It is confident, however, that by October hot and cold-rolled sheets will be easier.

One large plant in a tight steel area has been offered an extra tonnage of cold-rolled sheet. Another finds its local hot-rolled sheet tight, but significantly has turned down offers of sheet tonnages out of Detroit and the East.

This same consumer was actually offered foreign steel at prices comparable to those of local mills, but turned down the offer. While its allotment for fourth quarter is the same as that received in third quarter, the firm suspects it will be able to get more if needed.

Wire is extremely easy to get—carload lots were offered one metalworking plant on a 10-day basis.

Alert For Changes

Most PA's queried by IRON AGE regard their raw material inventory position as good, and prefer to hold at present levels or reduce it. One influential factor for some is that company order backlogs are edging down.

Some buyers are short ordering, cutting consumption of premium steel while pushing for immediate delivery of any premium steel still on order. They are adjusting incoming flow of raw materials to production.

A few cancellations on orders for mill steel are discussed, but there has been no major wave of cancellations thus far. In light plate, structurals, and heavy forging rounds, it doesn't appear there will be any. But while flat-rolled demand is currently flourishing, Mr. Average Purchasing Agent believes he'll get all the steel he needs, and more, in fourth quarter.

FIRE: GM Plant Gutted, Layoffs Begin

Detroit Transmission plant vital supplier to GM divisions and others burned down . . . Automakers quickly curb operations . . . GM mobilizes for action—By *R. D. Raddant.*

Fire sweeping through the huge General Motors Detroit Transmission plant last week brought total ruin and loss of life in one of the most destructive blazes in automotive history.

It was a tremendous blow to GM, well on its way to a record year. Its entire organization was immediately mobilized to handle the emergency and an industrial miracle is expected. When all of GM's facilities are put to work on a problem, even one as great as this, the miracle may happen.

Some informed but tentative guesses are that substantial production of transmissions will be under way in 2 weeks.

$40 Million Damage

The fire killed three persons, hospitalized 16, and another score were treated at the plant's medical center.

Plant damage was expected to reach $40 million but GM officials moved rapidly to hold down pyramiding economic effects of the fire elsewhere throughout the industry.

A pledge to employees that they would not lose a day's work was overly optimistic, but GM nevertheless moved rapidly to put as many as possible to work on salvage operations, restoring the old plant, and in other automotive divisions.

Moving Back Time

Some of the 10,000 employees were put to work immediately in salvage operations. Others were employed in rushing a return to production at the plant's old site in Detroit. Ironically, moving operations from Detroit Transmission's old location had just been completed. Now the operations will be moved back again.

In peril were the jobs of perhaps 50,000 other auto workers in plants supplied automatic transmissions by the burned-out plant. Detroit Transmission is the sole supplier of Hydramatic transmissions to Cadillac, Oldsmobile, Pontiac, GMC Coach and Truck, Chevrolet truck, GM army vehicles among GM divisions as well as Lincoln, Nash, Hudson and Kaiser.

Slowdowns Start Quickly

Because a large percentage of cars made by these automotive divisions have automatic transmissions and high production had made inventories exceptionally low, layoffs and shutdowns started almost at once. Daily production of the plant was 4200 transmissions a day in a 3-shift production operation.

Cadillac finished the week on a 5-hr day, then got ready to shut down temporarily.

Pontiac prepared to shut down when its 2-day inventory of Hydramatic transmissions expired.

Oldsmobile shut down, prepared to reopen next week on a 4-hr day.

Lincoln-Mercury cut down Lincoln production, but increased Mercury's to avoid layoffs or shutdowns. Independents were all down anyway.

GM immediately started to evaluate the machine tool situation,

DEVASTATING FIRE caused wall of General Motors new transmission plant to crumble.

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particularly how many of the 6000 tools at the plant could be salvaged. A lot of the tooling was special, but much of it can be replaced immediately with new equipment. Probably many of the transmission parts can be manufactured in other GM plants, then assembled at the old plant. It was understood that the old assembly line was practically intact.

Also completely destroyed in the dual purpose plant were special facilities of GM's Ternstedt Div. which was manufacturing T-41 tank range finders.

Estimates varied on how long it would take to resume transmission production at the old plant. Within a few days some token production might be started, but so much special tooling was destroyed in the fire that it will complicate the situation.

Average inventories of transmissions at automaking plants ranged from 1 to 2 weeks. Presumably, production of regular transmissions will be stretched as far as possible to avoid production slowdowns.

How Fire Started

As fire inspectors probed the cause of the fire, it was apparent the blaze had spread as much as 1200 ft in 3 minutes despite the installation of modern fire prevention devices.

The fire started in a drip trough beneath a conveyor line which carried transmission parts dipped in oil through a cleansing bath. Sparks from a welding torch touched off the liquid in the drip pans. Workmen immediately fought the fire with extinguishers, but it got out of control and spread through the drip trough to tanks of oil or cleansing solution. These exploded, touching off a series of other explosions and fires.

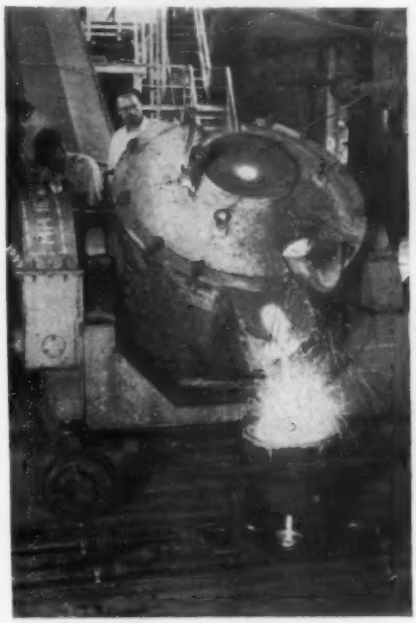
One source blamed the use of a jet of water on the burning oil as it was about to be brought under control. This may have scattered the burnnig oil over a wide area touching off a tank blast.

IRON POWDER: New Firms Enter Field

Hoegannaes Sponge Iron, Easton Metals start production . . . Hoegannaes using Swedish tunnel kiln method . . . Easton RZ process uses scrap, no gas—By *R. L. Hatschek.*

The booming iron powder business has recently added two new companies to its roster of producers. Newcomers are Hoegannaes Sponge Iron Corp. and Easton Metal Powder Co.

Hoegannaes has previously been known as an importer of sponge iron and iron powder from its parent company, Hoegannaes - Billesholms Aktiebolag of Hoegannaes, Sweden. It now has completed its



MOLTEN IRON is atomized into iron powder at Easton Metal Powder Co.'s plant.

$6-million plant at Riverton, N. J., is starting quantity shipments of domestically-made iron powder this month.

Annual capacity of the Riverton plant is about 29,000 tons. Standard grade will be the company's new high-quality Ancor-80 powder, previously imported from Sweden.

Standard imported grade until now has been MH-100. Hoegannaes expects to sell its higher quality Ancor-80 for the same price, 11.25¢ per lb, f.o.b. New York. The company will continue to import MH-100, W-40 and other powders, but no difficulty is expected in selling Ancor-80, as imported quantities have been tested by customers.

Hoegannaes stresses that the same tunnel kiln ore reduction process developed in Sweden is being used at Riverton. Details of the process are still secret, but it was summarized for THE IRON AGE as follows:

Use Tunnel Kiln

Cars loaded with Swedish iron ore concentrates and other materials are moved slowly through a 600-ft gas-fired stationary tunnel kiln. Time of the kiln cycle is secret, but THE IRON AGE was told it is "many days." Hoegannaes considers a rotary kiln "obsolete."

Results of the kiln baking is sponge iron, which is ground, resintered, and reground as needed to meet specifications.

Hoegannaes is currently importing about 45,000 tons of Swedish iron ore concentrate annually. But it is prepared to use domestic ore in an emergency or if economic conditions warrant it.

Scrap Is Source

Other newcomer to the field, Easton Metal Powder Co., is now in production at its Easton, Pa., plant. Dr. Gerhard Wagner, president, estimates plant cost at "about $1 million." Capacity is about 1000 tons per month. Easton is using the RZ process for what is believed to be the first time in the U. S.

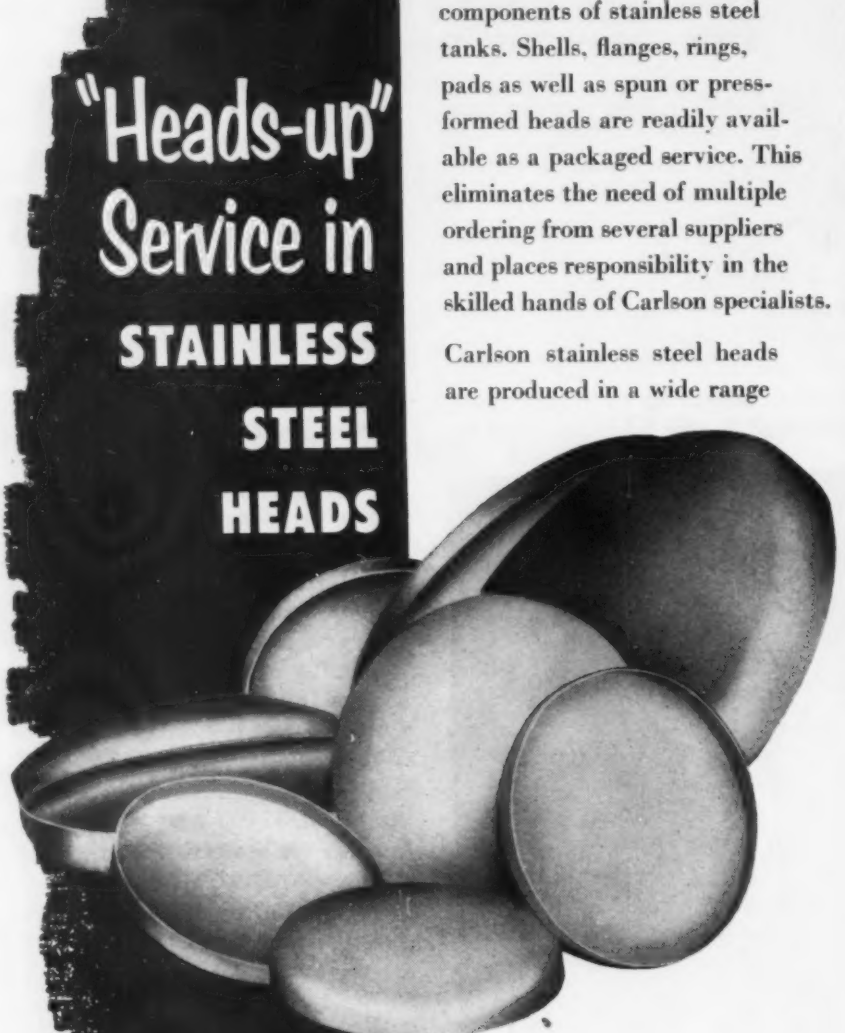
This process was originally developed in Germany by Mannisman Huettenwerke AG, a major German producer of steel pipe and associated products. It was used extensively during World War II to produce powder for shell rotating bands for German artillery shells

In this process steel scrap is first melted in a basic cupola furnace then atomized with air and water. The iron, high in carbon, is oxi-

"Heads-up" Service in STAINLESS STEEL HEADS

Fabricators rely on G. O. Carlson, Inc. for stainless steel heads produced to exact specifications and for other components of stainless steel tanks. Shells, flanges, rings, pads as well as spun or press-formed heads are readily available as a packaged service. This eliminates the need of multiple ordering from several suppliers and places responsibility in the skilled hands of Carlson specialists.

Carlson stainless steel heads are produced in a wide range



of sizes and gauges to ASME and standard specifications. Many styles of forming dies are available. There's an up-to-date folder describing these dies—write for your copy now!

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dized during the atomization cycle.

After atomizing, the powder is reduced and annealed in electric furnaces. No gases other than those generated during heating are used. Particle shape is a hollow, incomplete sphere. Purity runs 99 + pct.

Easton is stressing its economic production, pointing out that its plant is fully automated and uses an easily obtainable raw material. Purification by melting and reduction without hydrogen or other expensive gas are also cited as important factors in economical production.

Servo Controls Beneficiation

Patent is being sought on a new hydraulic gravity process for beneficiation of low grade ores.

Process is designed to overcome past difficulties resulting from variations in feed rates and pulp densities. A system of simple hydraulic servos has been designed to keep feed rates and densities constant.

Inventor of the process is Herman H. Cousins, 1475 Broadway, New York 36, N. Y.

While the servo control system was worked out with utilization of lean iron ores primarily in mind, Mr. Cousins believes it can be used for concentration of other free-milling ores in the 8-200 mesh range which have been considered either too lean or too contaminated for economical beneficiation.

Signs Iron Ore Contract

Contract has been signed which may lead to development of a medium sized, high grade deposit of iron ore in Arizona.

Deposit is located in Pima County on the Papago Indian reservation about 45 miles from Ajo, 35 miles from Casa Grande, and 60 miles from Tuscon. It is in the Quijotoa mining district.

Agreement is for 20 year lease with option to buy, all royalties to apply on purchase price.

Contract covers five mining claims estimated to contain 4 million tons or more of surface ore suitable for open pit mining.

VIDEO: Indoor Weather to Spur Output

Fall and winter will pick up TV set production rate . . . Sets will be plentiful on market . . . Broad screens gaining . . . Color TV won't come right away—*By R. M. Stroupe.*

Brisk business in television sets during the fall and winter period is visualized by producers.

By mid-September, vacations will be over for most of the nation's family groups. Cooler weather and the reopening of classroom schedules will result in the spending of more hours indoors. Traditionally at this time, television set sales have shown an upswing—and manufacturers believe the same pattern will be followed this year.

There will be plenty of sets on the market. During the first half of 1953, producers topped their former record by turning out some 3.8 million TV receivers. In June alone, work was completed on more than a half-million.

Marketing Ingenuity

Until this year, the high mark for video production in a January-June period was reached in 1951, when 3.4 million receivers were manufactured.

Retailers have been showing considerable ingenuity in marketing their stocks. Sales through the end of June amounted to more than 2.7 million TV sets. This figure is very close to the 3 million radios (not including those for autos) sold during the same time.

One dealer technique which is meeting with some success is to convince the consumer that he should become a two-television-set owner. He has, for example, a table model several years old, with a 14-in. screen. His dealer may be able to sell him on the idea of moving the old set to the den or the guest room and installing a new 21-in. receiver in the living room.

Another operation is the actual replacement of technically imperfect vintage sets. How large a market this may be is undetermined, but the industry believes it's time for the public to shove aside the "knothole" sets, with screens measuring 12 in. or less, and watch programs comfortably on wide-screen receivers.

Emphasis obviously is being placed on sale of sets with broad screens. The most popular new console and radio-TV combination models have screens averaging 20 in. Table sets with screens of about 18 in. are highly favored.

Speculation has been plentiful, and often gloomy, on the effect which color television on a national scale might create on the sale of black-and-white receivers. Builders of the conventional sets, though, rather than being overcome by foreboding, see a thriving market ahead.

A partial reason for this optimism is the relatively high price which will be asked for early color sets, in keeping with the compatible method worked out by the National Television System committee.

Prices Set Already

Federal Communications Commission proposes the adoption of this system, permitting existing sets to receive color telecasts in black-andwhite without new equipment.

"Let's face it—this thing is bigger than BOTH of us."

Radio Corp. of America plans to price its 14-in. color sets at $800 to $1000. General Electric reportedly will turn out a 17-in. receiver retailing at $700 to $900. Mass production, the industry says, will reduce the unit price, but no one is sure by just what amount.

Estimates have indicated that, eventually, color receivers may cost only 25 pct more than black-and-white sets. Dr. W. R. G. Baker, General Electric vice-president and chairman of NTSC, believes the differential named is too low. He is "inclined to believe that it may be nearer 50 pct."

Dr. Baker sees programming as another factor favoring healthy sales of black-and-white receivers. Color, he says, is going to be a "supplementary service" to the TV watcher. He is certain the conventional set will provide "the backbone of television sales for at least 5 years."

TV Stations Boom

Demonstrating color and monochrome television side by side, Dr. Baker suggests, is the sound way to remove the customer's indecision about the type of set he wants. He expects color sets to influence merchandising by the fall of 1954.

Before that season, RCA and GE intend to have their new equipment on the market. Philco has said it can offer color sets for sale in "a reasonable time" after FCC gives its final ruling on the system.

Backing up the sale of sets is an ever-growing number of television stations, located in every state except Vermont. Before the FCC freeze on station construction, 108 were on the air. Since the ban was lifted in April, 1952, some 440 new construction authorizations have been granted. Of course, it will take years to build these but the TV market will be constantly renewed.

More than 100 new stations, built at an estimated average cost of $300,000 to $500,000, have begun operations in a little more than a year. This list may be increased by as many as 50 stations before Christmas.

NICKEL: Decontrol Decision Awaited

ODM ponders problem of decontrol . . . Considers allocations and end use restrictions . . . Most nickel users want use restrictions killed, uncertain on rationing—By W. V. Packard.

Should nickel for civilian use be decontrolled?

Office of Defense Mobilization, still struggling with this thorny question, hasn't made up its mind. Decision it finally reaches will be of vital importance to a lot of companies—big and small.

The to-be or not-to-be of nickel control became big news when it was learned National Production Authority, impressed by decontrol recommendations of an industry advisory committee, forwarded them to ODM.

An official of ODM told THE IRON AGE his agency would go slow in making up its mind what to do about the recommendation.

Two-Part Question

Meanwhile, a series of meetings have been taking place in Washington between various government officials (including ODM and NPA), and representatives of steel, auto, and metal finishing (plating) industries.

The nickel control question is in two parts.

First is the question of control of nickel distribution to civilian industries.

Second is the question of M-80 which prohibits end use of nickel for many civilian applications, limits its use in others.

Original recommendations of the Steel Industry Advisory Committee called for end of nickel allocations (except for military and atomic energy priority) on Oct. 1, and revocation of M-80 Dec. 31.

Now it appears that most nickel users are more distressed by M-80 prohibitions than they are by government allocation. Reason: they feel nickel supplies will be short no matter who allocates them. And prohibitions on nickel use are seriously interfering with their ability to serve their customers. Some nickel users can present a pretty good case that they could actually increase production if end use controls were abandoned.

Both steel and auto industries would like to see all nickel controls ended.

For viewpoint of auto industry and suppliers on nickel controls see p. 72—Ed.

Platers would cheer the end of M-80, which has harassed them as much if not more than anyone else. But they aren't at all sure they want government allocation of nickel to end. The many small platers especially are worried at the prospect of trying to compete with big steel and captive plating plants in a scarce nickel market.

This strong sentiment has resulted in recommendation by the National Assn. of Metal Finishers that "allocation remain in full force and effect until such time as stockpiling, defense and atomic energy program do not take most of the supply."

Not all platers feel so strongly about ending distribution controls. Head of one large plating plant told THE IRON AGE "We have been paying considerably in excess of regular market price for nickel salts and anodes. And we expect to keep on doing it if we have to—regardless of whether or not government controls distribution."

From other sources THE IRON AGE was able to verify payments as high as $2 and $3 per lb. for "reclaimed" and foreign nickel. (Regular price of electrolytic nickel is 63¢; plating anodes are 80¢.) However, these premium prices have recently turned down in the face of decontrol talk.

In some respects M-80 has become the laughing stock of the trade. It is common knowledge that platers are violating restrictions that would prevent them from filling needs of valued customers.

"Need's Too Great"

Last Thursday a nickel advisory committee of plating industry suppliers unanimously recommended decontrol of both distribution and use.

Strongly opposing decontrol are the military departments and some government officials. They insist stockpiling and military needs are too great to permit decontrol within the near future. Controls officials place military and atomic energy needs at 40 pct of supply.

But the drive for decontrol is gaining momentum. And it will be hard to resist, especially with a freedom-minded Administration. When it comes, it may go all the way—except for simple priority assuring supplies for military and atomic energy uses.

You can bet there will be some rapid shifting of markets when nickel controls are lifted.

Platers will be driving hard for automotive and other applications where straight-chrome stainless or other material has been substituted.

Stainless steel producers will drive aggressively back into markets where their products have been held in check by controls.

What's Still Controlled

Under the Defense Materials System, which replaced Controlled Materials Plan July 1, the Office of Defense Mobilization still controls distribution in the civilian market of the following "scarce and critical" materials:

Primary nickel,
Nickel-bearing stainless,
High nickel ferrous and nonferrous alloys,
Permanent magnets containing nickel,
Nickel silver,
Ferro-columbium,
Ferro-columbium-tantalum, or columbium-tantalum bearing steel,
Heat-resistant chromium or chromium nickel alloy, iron or steel.
Diamond grinding wheels,
Titanium sponge and titanium metal (ingot and mill products).

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SURFACE: Tests Cut Machining Cost

Manufacturer uses only lathe to finish to required surface smoothness . . . Formerly turned, milled, honed parts far beyond required specs . . . Costs cut—By R. M. Lorz.

Fingernail testing of metals for surface roughness is rapidly becoming as outmoded as a 12-in. rule in a machine shop. Emphasis on more scientific and standard methods has been helped along by introduction of testing instruments which save time and money in finishing.

One new measuring device, called Surfindicator, operates on the same principle as your home phonograph. A diamond stylus on a manually operated pickup moves across the peaks and valleys of the machined surface. An operator trained in a few minutes can complete the operation by merely guiding the hand operated pickup over the work piece and reading the meter.

Easy to Handle, Repair

Simplicity of the unit should give metal finishers a chance to make every worker an expert on surface roughness. When this happens in a plant, inaccuracies inherent in the touch system disappear.

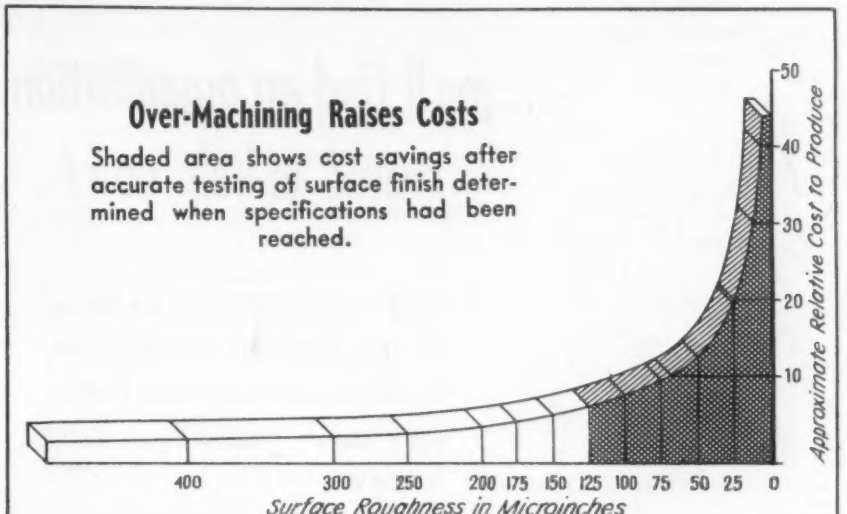
Users report that new unit is made up largely of commercially standard parts and can be calibrated and repaired in most instances without sending it back to the manufacturer. Any qualified electronics man can do the job.

Completely mechanical reading isn't necessary to maintain accuracy. Some users say they are getting accurate readings with manual tracing because tracing speed isn't a variable on the majortiy of production pieces.

User Lauds Savings

Savings in the shop can be considerable. A Cleveland firm which recently started using the portable unit offered THE IRON AGE a good case history. Before using the new unit this firm was turning, milling, and honing some parts down to 8 microinches when specs called for 125. Owner of this plant estimates that relative savings have been fourfold since he is now able to surface finish parts on the lathe alone.

His case is indicative of what has been happening in the metal finishing field. For years many shops have found it almost impossible to be completely sure surface finishes would meet definite specifications. Result of this general approach was loss of juicy automotive and defense contracts for parts. The loss in most instances could be attributed to inadequate testing equipment and general lack of standards.



Standards Big Help

Pressing need for uniform standards has resulted in almost universal adoption of the arithmetic microinch scale of measurements. This development should be a boon to industries which are becoming more decentralized every day.

Many men in surface finishing also see a need for an education campaign. They claim there are still too many finishers who think dimensional accuracy is enough. These people are stressing the fact that surface roughness must be conquered because it has a direct bearing on cost, appearance, break in time, heat transfer, tool life, preventive maintenance, tensile strength, corrosion resistance and other factors.

Their battle will be won, according to one finisher, when standard testing devices are common on every production line and the educated thumb has been retired.

The portable Surfindicator was designed by General Motors and is being manufactured under a license granted Brush Electronics Co. of Cleveland. Designers had several objectives in mind when they went to work on the instrument. Their overall plan was to come up with a testing device which would insure uniform surface characteristics no matter where components were made. In this era of interchangeable parts their aim wasn't shortsighted.

To achieve it, engineers set out to make an electronic unit which would be (1) inexpensive, (2) reliable and easily serviced, (3) small, portable and simple to use, (4) adaptable to a wide variety of work, (5) satisfy the greatest number of standards, and (6) operate from 115 v, 60 cycle power.

Final result of their effort is a portable, 15 lb unit which can be used anywhere on the production line. It reads surfaces within 10 pct and is priced within range of small operators.

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— Government —

INDUSTRY: 'White

Commerce Dept. head asks comparison to past . . . Cites acts for business.

Secretary of Commerce Sinclair Weeks last week listed the accomplishments of the Administration in cleaning up the political air and setting proper conditions for free enterprise to thrive.

At a New York convention of businessmen he asked: "Are things better than they were?"

He invited a comparison between current and past conditions and hoped Americans could feel the change in spirit and action. He indicated that a higher standard of political morality, economy measures, economic security, with jobs and income at record heights were at hand.

Break for Small Firms

He said Commerce Department has sold the Federal Barge Line to private industry. This government-owned system, which operated on the Mississippi and other rivers, had piled up losses between 1939 and 1952 amounting to $9,749,000, making a profit during that period for only 2 of the 14 years.

Mr. Weeks continued that the Administration has given small businessmen and their workers one of the best breaks in years through the new, independent Small Business Administration, as passed by the Congress.

"One of the most important contributions which this Administration and the Congress have made to the American people is a sincere effort to cut the cost of government. Against obstacles and in the face of new necessary demands, we already have slashed expenses substantially," he said.

"In the Commerce Department, as a result of our 1954 budget review, we were able—through the application of sharper shears and a firm backbone—to effect a reduction of $169,443,000 in the requested authorizations. The Congress also made reductions, so that the final appropriations were $811,826,925 instead of $1,127,245,925 as

House Has Helped'

requested by the outgoing Administration. This represents a total reduction of $315,419,000 or approximately 28 pct."

Mr. Weeks called attention to another field in which business attention is desired—excise taxation. Excises today are the third largest source of Federal revenue. But the laws under which they are enforced lead to improper discrimination among consumers and inflict hardships on many industries, he maintained.

Excise Taxes Cockeyed

"Some of the items taxed are genuine luxuries; others are bona fide necessities. Some excises are levied against prosperous industries. Other items taxed are produced by industries experiencing economic distress even in boom times," he stated. The whole system is antiquated, and cock-eyed and in particular soaks small business. It requires a thorough overhauling and we want your advice on the subject."

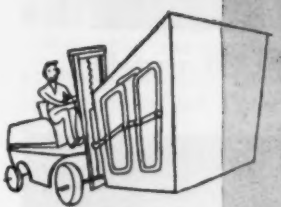
He promised that the Administration was hard at work on plans for improvement and would submit specific proposals for a modified system of excise taxation.

Mr. Weeks saw a good future for business because the competitive enterprise system is strong and because the Administration is doing everything possible to encourage business and steady employment.

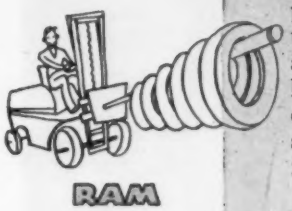
"Frankly, I don't know what we can do about him. He holds ten shares of stock."

Have You Explored All the Ways To Save Money With a Fork Truck?

WOULDN'T IT BE GOOD BUSINESS to know all the ways to save money with your Clark truck? It's the function of Clark attachments to transform your truck into a machine of *many* uses. Rather than let a truck stand idle for "lack of work," you can switch from one attachment to another in 10-20 minutes—go from one job to another, from partial idleness to *full-time* usefulness.


CARTON CLAMP

For example, why use manual labor to handle scrap, coal, sand or even cement? You'll do the job faster, more economically with one of Clark's shovel attachments. Why manhandle cartons, crates, rolls, drums, bales? Simply switch to the proper Clark attachment—there's one designed to handle practically any product or material. And for the relatively few cases where a standard attachment won't do the job, it's more than likely that our Custom Truck Department can design and build special equipment to solve the problem (—and inquiries are invited).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Perhaps you're hesitating to buy a fork truck because your principal handling job requires only part-time truck application. If that's the case, don't fail to look into this attachments angle. Chances are we've got, or can devise, one or more attachments that will enable you to utilize a fork truck profitably, all day long.

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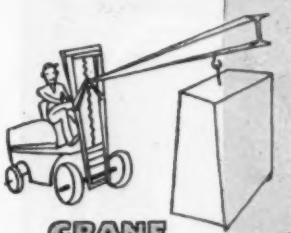
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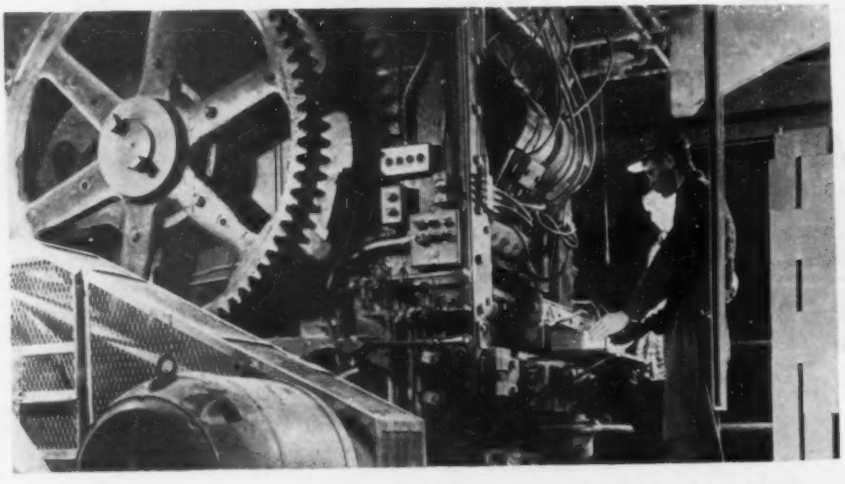
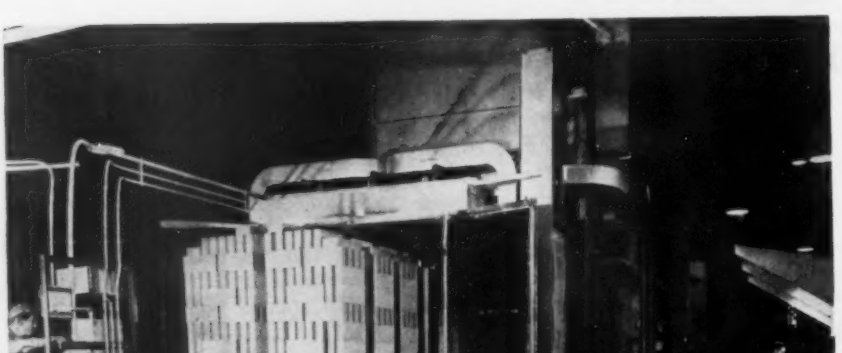


HIGH PRESSURE is used to insure proper density of silica brick refractories.



LOADED KILN CAR enters tunnel kiln. Control instrument desk is at right.

PALLETS facilitate brick handling at Harbison-Walker's Windham, Ohio, plant.

Refractories:

Silica brick plant features dust control, mechanization.

To keep pace with expansion in steel and other industrial users of refractories, Harbison-Walker Refractories Co. is spending $30 million on new plants, and modernization and expansion of others.

The H-W program includes new silica refractories plants at Windham, Ohio, and Fairfield, Ala.; a new fireclay brick plant at Fulton, Mo., and a basic brick plant at Marelan, Quebec; expansion and modernization of other silica and fireclay brick plants. Plants at Baltimore and Warm Springs, Calif., have increased capacity to produce the basic refractories magnesite, chrome and forsterite.

30 Kilns Operating

In June, 1951, the company was operating 18 continuous tunnel kilns; today it is operating 30.

H-W describes the new plant at Windham as "the only silica refractories plant of its kind in the world." Features include mechanization of batch control, impact pressing, direct setting of brick from presses to tunnel kiln cars, (an international "first" in the manufacture of silica refractories), close control of temperature, complete enclosure of and continuous dust removal from dust-generating equipment.

Site Selection Logic

Plant location was selected for proximity to high quality raw materials and important consuming areas. On the main line of the Erie R.R., the plant is 10 miles west of Warren, Ohio, and within easy shipping distance of Youngstown, Warren, Pittsburgh, southern Ohio, Cleveland, and Detroit.

The Windham plant was erected in 1951-52.

Basic push to refractories expansion has come with the swift growth of the steel industry to about 120 million tons anuually.

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PEOPLE: Plant Building's No. 1 Factor

Electromet used human engineering in building Marietta plant . . . Rookie labor force turned efficient, safe . . . Details of remarkable record . . . Dairy case solved—*By J. B. Delaney.*

Industry is learning to master the third dimension in locating and building a new plant—human engineering.

Large companies, particularly, have found that financing and equipping a new operation is not enough; that people are perhaps the most important element in the picture.

That's why Electrometallurgical Div. of Union Carbide & Carbon Corp. made human engineering a primary consideration when it decided to build its new $100 million ferroalloys plant at Marietta, Ohio. It paid dividends.

Electromet's blueprint for staffing the plant was ready long before the first furnace was fired in September, 1951. Many a pitfall and production delay was avoided by advance planning for the hiring and training of employees, many of whom had never seen the inside of an industrial plant.

Had Little Experience

Before Electromet moved in, industry in the immediate vicinity of Marietta was negligible. The company had plenty of applications for jobs, but relatively few of the applicants had proper experience. A good percentage of the plant workers are former farmers, school teachers, clerks, filling station attendants, railroaders, construction workers, and the just plain unemployed.

Molding this group into an efficient operating force was a job that J. C. Douglas general superintendent and his staff point to with a great deal of pride.

An unlooked-for complication arose when the dairy industry complained bitterly that the lure of steady work in an industrial plant was prompting dairy farmers to sell their stock and live on their earnings from Electromet.

During the plant's first year of operation, available supply of milk in the area declined 10 pct as approximately 100 farmers went out of the dairy business. Coupled with a heavy influx of families into the community, the farm-to-industry switch confronted dairy people with a serious problem.

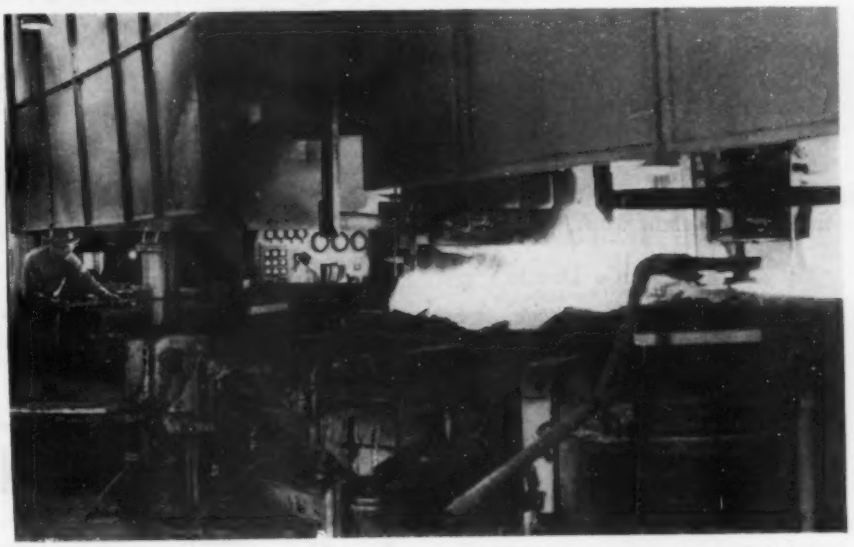
But this was one story that had a happy ending. Contented dairy operators report that virtually all the deserters have since returned to the farm on a part-time basis. Furthermore, milk yield is up about 20 pct, and 50 pct of the farmers now qualify as grade "A" instead of grade "B" producers, their former status.

What happened was this: the erstwhile full-time farmers used their income from plant work to buy better cattle and equipment. They became more efficient producers even though they retained their jobs with Electromet.

When the plant's top employment figure of 2500 to 3000 was publicized, other employers in the area were afraid their skilled workers would be lured away. But their fears were not justified. Electromet cooperated by instructing job applicants to give their former employers ample time to find replacements. This helped maintain good relations with other companies in the area.

Chronologically, this is how the Marietta plant was staffed: (1) Company policy—hire only local people as long as they were available. A few hires from outside the area were made of people with special skills not available in the local area.

(2) Key supervisory employees were transferred in from other plants of the corporation; a total of 77 by Jan. 1, 1953. There were a few transfers of skilled employees.



WORKING NEAR submerged arc furnace at Electromet was new experience to this man.

(3) During late 1950, first hourly employees were hired in the steam station, a skeleton crew to become familiar with type of equipment they would later be operating. In April, 1951, first hourly employees were hired for the Traffic Department—locomotive crane operators, switchmen, locomotive engineers, and conductors. First two men hired in traffic have since been promoted to yardmaster.

(4) In August, 1951, a number of furnace men were hired about 2 weeks prior to starting of the first furnaces. These men were selected carefully as were those hired for the mix and packing departments. The Alpha-9 general ability test and the mechanical

comprehension test were used since these men were considered potential supervisors. Most of them had never seen a melting furnace.

(5) Electromet encourages its people, particularly supervisors, to participate in community affairs. Many are now leaders in civic matters, churches, service clubs, and other community activities.

Through first year of employment, the plant averaged one hire for 2.2 interviews. This has dropped to below two since requirements are not now as high as they were at start-up of the plant. The company has 16,000 job applicants on file, and new ones arrive at the rate of about 115 per week.

Labor turnover during 1952 was not disturbing; about 17 pct on basis of average number of employees. Most "quits" were employees with service records of less than a month. Since August, 1951, there have been 54 promotions to supervisory jobs, including employees who were totally unfamiliar with plant work.

Safety Man's Dream

Safety record has been good. For 1951 it was something that all safety men dream about—frequency rate of "0" and severity rate of "0." This despite the fact that the first furnace was started with only two men per shift who had seen one before, and with construction men working on a nearby furnace.

Safety record for 1952 showed a frequency rate of 8.0 with a severity rate of 7.35. To date in 1953 there has been one lost-time accident with a frequency rate of .987 and a severity rate of .068.

Rates of pay are based on a job evaluation system and are among the top 25 pct in the area. Employees also participate in paid vacations, a group insurance and hospital and surgical insurance program, for which the company pays one-half, and a non-contributory pension plan. The company also contributes to an employees savings plan.

In March, 1951, a monthly employee publication, *Riverviews*, was started. The 8-to-12 page publication is mailed to employees.

Contracts Reported Last Week

Including description, quantity, dollar values, contractor and address. Italics indicate small business representatives.

Charger, 20 MM, 3214 ea, $982,807, Johnson Fare Box Co., Chicago.

Radar set, 12 ea, $411,340, Capehart Farnsworth Corp., Fort Wayne, Ind.

Type T-11 cameras, 119 ea, $683,566, Fairchild Camera & Instrument Corp., Syosset, N. Y.

Motor, 1175 ea, $164,436, Thompson Products, Inc., Cleveland, *R. Bosch.*

Aircraft camera, magazines, tools, 1528 ea, $666,301, Hycon Mfg. Co., Pasadena, Calif., *A. L. Melzian.*

Tuning units, 1703 ea, $228,051, Sylvania Electric Products, Inc., Buffalo, N. Y., *H. H. Martin.*

Actuators & spare parts, 1372 ea, $351,866, Air Associates, Inc., Teterboro, N. J.

Spare parts, 1520 ea, $78,526, Vickers, Inc., Detroit, *R. M. McCabe.*

Degreasers, vapor spray type, 12, $28,382, Topper Equipment Co., Rahway, N. J.

Spare parts, refrigerators, $53,746, U. S. Thermo Control Co., Minneapolis.

Masts and maintenance parts, $50,489, Barker & Williamson, Inc., Upper Darby, Pa.

Telephone cable, $136,648, General Cable Corp., Washington.

Bomb range and gunnery range, job, $38,498, Cottle Construction Co., Clovis, N. M.

Indicator, 2009 ea, $255,826, Kearfott Co., Inc., Little Falls, N. J.

Spare parts, $100,000, Cessna Aircraft Co., Wichita, Kan.

Jet instrument trainer, 360 ea, $585,292, Link Aviation, Inc., Binghamton, N. Y.

Magazines, spares, tools, 686 ea, $2,000,402, Chicago Aerial Survey Co., Chicago.

Motor generator sets, 112 ea, $398,720, Bogue Electric Mfg. Co., Paterson, N. J.

Engine, 255 ea, $505,193, Continental Motors Corp., Muskegon, Mich.

Indicators, 102 ea, $30,088, Kollsman Instrument Corp., Elmhurst, N. Y.

Components, spare parts, $7,901,169, Minneapolis-Honeywell Regulator Co., Minneapolis, *S. F. Keating.*

Generator sets, 255 ea, $1,120,315, ACF-Brill Motors Co., Philadelphia.

Sight, gun camera, 273 ea, $35,817, Gordon Enterprises, N. Hollywood, Calif.

Projector sets & accessories, 524 ea, $164,777, Viewlex, Inc., Long Island City, N. Y.

Spare parts, $312,766, General Electric Co., Schenectady, N. Y.

Spare parts, $677,529, General Electric Co., Johnson City, N. Y.

Control stick switch, 5059 ea, $281,229, Guardian Electric Mfg. Co., Chicago.

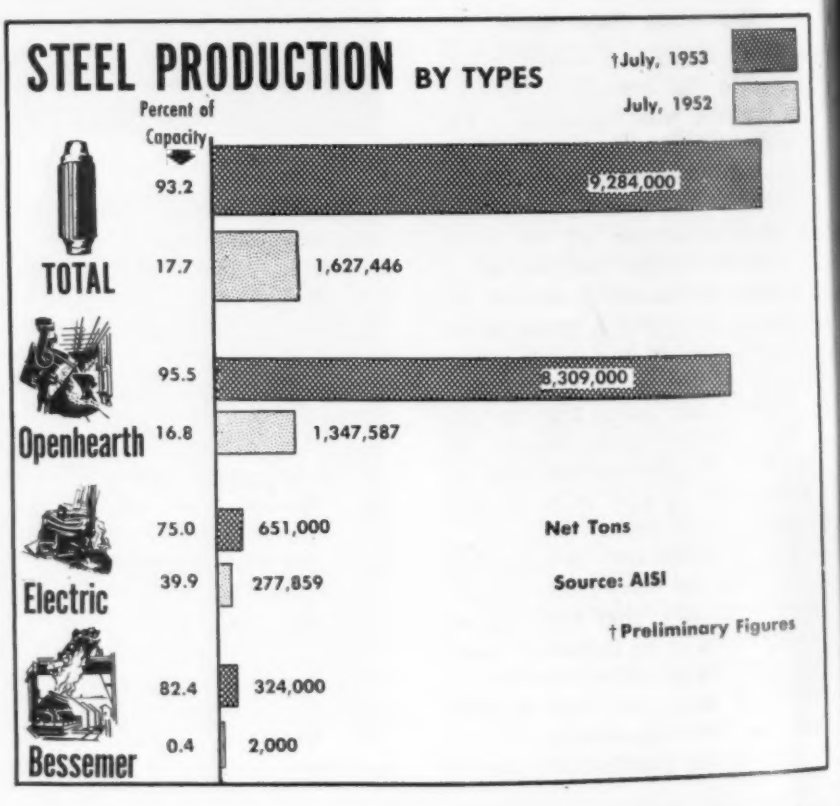
Several Controls Altered

Fourth quarter export quota for nickel bearing stainless was fixed last week at 1,841,700 lb, same as for the third quarter including supplemental allotments.

At the same time, Office of International Trade lifted quantitative restrictions in favor of open-end quotas for 5 steel items—standard rail, plate, structurals, oil country tubular, and line pipe 16 in. or above.

In still a third action, OIT removed copper base alloy ingots from timetable licensing and lifted certification requirements covering origin of refinery shapes.

New third quarter applications to export copper scrap will be accepted between Aug. 20 and Sept. 20. Reason for the additional filing period is that there has been considerable duplication in the initial applications, leaving open tonnage available.



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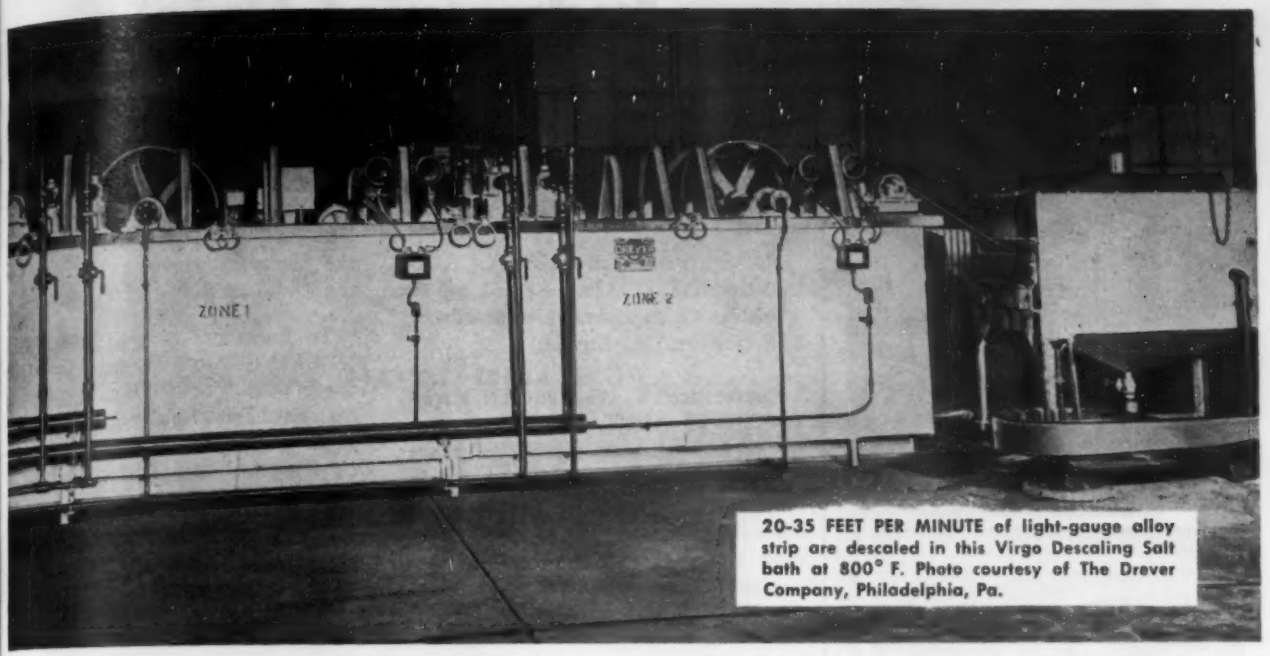

20-35 FEET PER MINUTE of light-gauge alloy strip are descaled in this Virgo Descaling Salt bath at 800° F. Photo courtesy of The Drever Company, Philadelphia, Pa.

HOW TO
DESCALE 5½ MILES OF STRIP PER DAY

You can get clean bright surface in ONE operation with VIRGO® DESCALING SALT

Straight chrome and chrome nickel strip flow through this continuous descaling-annealing unit, at 25-35 feet per minute—about 5½ miles per 24 hour day.

The light-gauge strip is descaled in one pass through a bath of molten Virgo Descaling Salt at 800° F., after annealing. The process yields a chemically clean, bright surface with no pitting, etching or metal loss.

Large or small, your plant can show real production-time savings with the Hooker Process using Virgo Descaling Salt, or with the Virgo Molten Cleaner process. Use these processes on stainless and alloy steels: castings; forgings; fabricated parts; material to be salvaged. Both processes are non-electrolytic . . . non-toxic . . . employ simple equipment . . . do not require close supervision . . . are easily adapted to your production methods. For full details, mail coupon or write us today.

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They tell the whole story on Virgo Descaling Salt and Virgo Molten Cleaner—what they are, how they work, their advantages, equipment involved, and the Hooker services you enjoy as a user of the process.

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3

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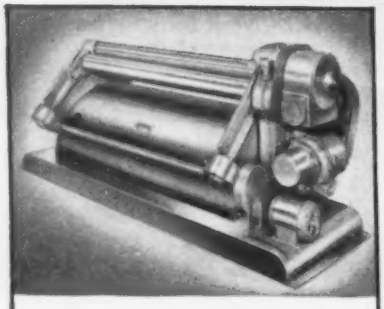
REED
ENGINEERING CO.

Modern Metalworking Equipment

- BENDING ROLLS
- TURNING ROLLS
- AUTOMATIC WELDING FIXTURES



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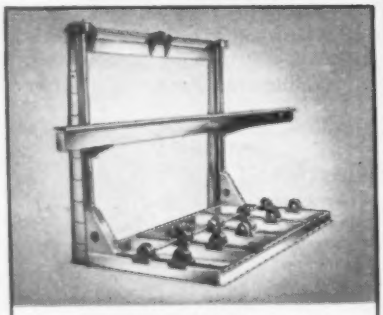
- ★ In 18 models, ranging from 3 ft. x 10 ga. to 8 ft. x ¼" in capacity
- ★ Rugged, all steel construction
- ★ Built-in, silent worm gear drive
- ★ Durable, special bronze bearings
- ★ Power adjustment & air drop end available on most models



UNIT TYPE AUTOMATIC WELDING TURNING ROLLS

- ★ Combines adjustable track support and turning rolls into one fixture
- ★ In 5 standard models
- ★ Capacities up to 9 tons, 12 ft. diameters
- ★ Vertical and horizontal powered track adjustment on larger models

WE INVITE YOU . . . to write us for specifications, prices, list of REED users near you. No obligation. Just write on your letterhead.

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Industrial Briefs

New Plant . . . CHEMPLATE CO., has opened its newly established general offices and production facilities at 2671 E. 26th St., Los Angeles.

Voted President . . . ALLOY CASTING INSTITUTE has elected as its president G. A. Baker, vice-president, The Duriron Co., Dayton.

Conference . . . AMERICAN MANAGEMENT ASSN. will hold its national office management conference on Oct. 12-14 at the Hotel Astor in New York. Theme will be "how the office can play its part in profit planning that permeates the entire organization."

New Quarters . . . AMERICAN CAM CO. has moved to its new quarters at Bloomfield, Conn.

Modern Plant . . . UNITED STATES DIAMOND WHEEL CO., Aurora, Ill., has completed its new Aurora, Ill., plant. It is in full production of diamond grinding wheels.

Carries Alloy Bars . . . TUBE DISTRIBUTORS CO., INC., has added alloy bars to its present stock, and has increased its fleet of trucks to speed up deliveries.

Name Change . . . JONES & LAUGHLIN STEEL CORP., Pittsburgh, has changed its trade name "Otiscoloy" to "Jalten."

Consolidated . . . CONTINENTAL CAN CO. has consolidated its two recent acquisitions, the Benjamin C. Betner Co. and Shelmar Products Corp., into the new Shellmar Betner Flexible Packaging Div. Benjamin C. Betner, Jr., will be in charge of operations.

Railroad Station . . . Pennsylvania gained a new railroad station recently at Howell, Pa., to serve the new plant of UNITED STATES STEEL HOMES, INC., housing subsidiary of U. S. Steel Corp.

Aptly Named . . . "VISUAL" PLANT LAYOUTS INC. is the new name of "Visual" Planning Equipt. Co., Inc., Penna.

Rep Appointed . . . COPES-VULCAN DIV., Continental Foundry & Machine Co., Pa., has appointed C. H. Spencer & Co., 210 W. 33rd South, Salt Lake City, its representative.

GM Sells Holdings . . . GENERAL MOTORS CORP., has entered into an agreement for the sale of its stock holdings in the seven Herta Driv-Ur-Self companies including the Sterrett Operating Service to the Omnibus Corp. of Chicago.

To Construct . . . LURIA ENGINEERING CO., Bethlehem, has a contract with The Western Condensing Co., San Francisco to build a 25,600-sq-ft standardized steel warehouse on Highway 125, Appleton, Wisc.

Purchased . . . CHAIN BELT CO., Milwaukee, has purchased Shafer Bearing Corp., Downers Grove, Ill., to broaden the markets for its power transmission products. It will be known as the Shafer Bearing Div.

Motor Parts . . . WESTINGHOUSE ELECTRIC CORP. reports its plant at Attica, N. Y., which has been building industrial stokers, will become a branch plant of the Westinghouse Motor & Control Div. and will produce parts for electric motors and some other products.

Plans to Build . . . LUKENS STEEL CO., Coatesville, Pa., plans to build a $10,500,000 armor plate producing plant adjacent to its present heat treating plant.

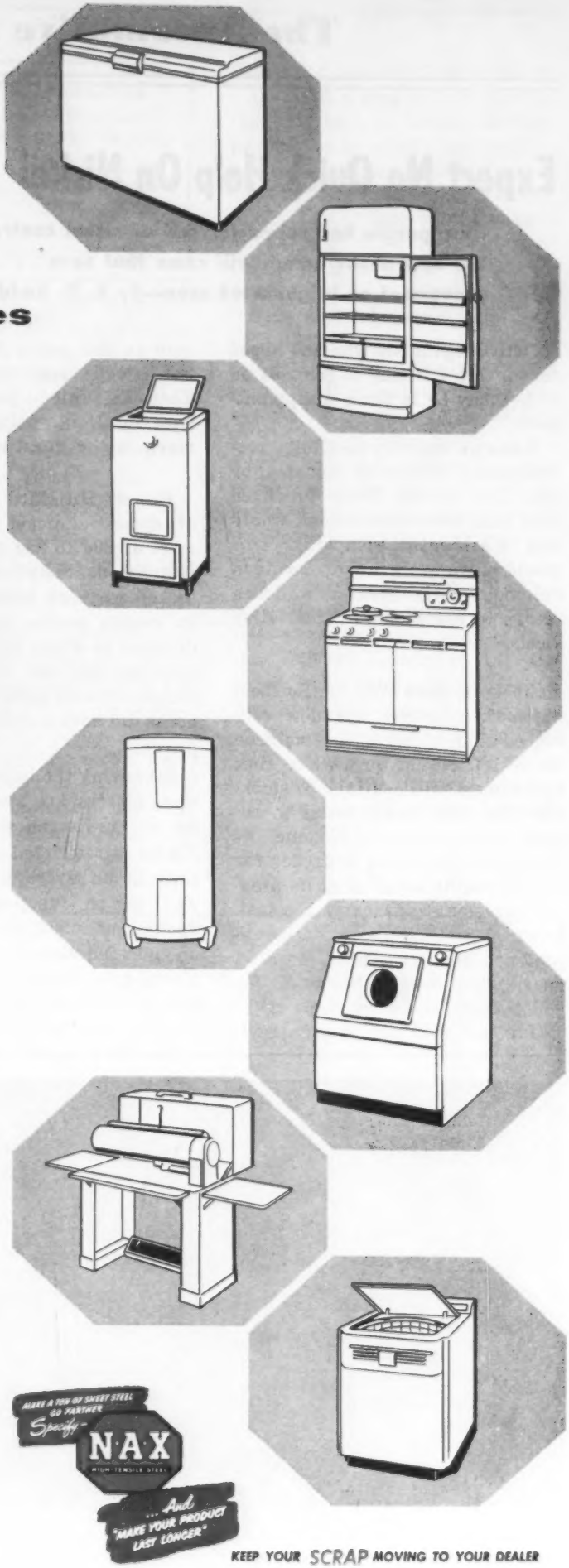
New Organization . . . THE TUNGSTEN INSTITUTE has just been formed with headquarters at 1757 K St., N. W., Washington. W. Lunsford Long, of Warrenton, N. Carolina, is president.

Steel Warehouse . . . CONNERS STEEL WAREHOUSE INC., has opened a steel warehouse specializing in sales of sheet and strip in the Lawrenceville district, Pittsburgh, at 5610 Harrison St.

Sales Outlet . . . ALLIS CHALMERS MFG. CO., Milwaukee, has named Blair Electric Service Co., 3108 Pleasant Valley Blvd., Altoona, Pa., as a distributor.

Will Direct . . . Clarence B. Randall, chairman of the board, INLAND STEEL CORP., will direct the federal commission study of methods for improving the nation's foreign economic program. The new 17-member commission, created this year by congress, will review present economic policies and prepare for the President and Congress recommendations for a revamped program.

for **High Strength and Longer Life in Household Appliances Specify**



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N-A-X HIGH-TENSILE, having 50% greater strength than mild carbon steel, permits the use of thinner sections—resulting in lighter weight of products, yet with greater resistance to denting. It is a low-alloy steel—possessing much greater resistance to corrosion than mild carbon steel, with either painted or unpainted surfaces. Combined with this characteristic, it has high fatigue and toughness values and the abrasion resistance of a medium high carbon steel—resulting in longer life of products.

N-A-X HIGH-TENSILE, with its higher physical properties, can be readily formed into the most difficult stamped shapes, and its response to welding, by any method, is excellent. Due to its inherently fine grain and higher hardness, less surface preparation is required for either painted or plated parts.

Your product can be made lighter, resulting in shipping economies to consumer . . . to last longer . . . and in some cases be manufactured more economically, when made of N-A-X HIGH-TENSILE steel.

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MAKE A TON OF SHEET STEEL GO FARTHER
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... And "MAKE YOUR PRODUCT LAST LONGER"

KEEP YOUR SCRAP MOVING TO YOUR DEALER

Expect No Quick Help On Nickel

Auto people had hoped for end of nickel controls Oct 1 . . . But now doubt action will come that soon . . . No quick improvement on bright work seen—By *R. D. Raddant.*

Detroit optimists who had hoped for an Oct. 1 lifting of controls on nickel may be in for a disappointment.

When an industry task force recommended lifting of controls by that date, it was freely predicted here that recommendations would find Washington sympathy. This would mean a big improvement in automotive brightwork as well as a return to use of high nickel alloy steels.

Stockpile Bars Way . . . But best automotive sources are now convinced that nickel will remain on the restricted list for a while, that government will continue to stockpile this last major metal to remain under controls. No one believes that the nickel is needed for the jet engine program at its present pace, but apparently the task force recommendations failed to convince that stockpiles were at an adequate level. (See p. 58 for GM transmission plant fire.)

One fact that may speed a revision on this policy is that Canada has lifted its restrictions on nickel. This can't fail to have some influence on U. S. policies, but how much is the question.

Platers Hit Hard . . . The price of domestic nickel remains at a level of 80¢ to 85¢ per lb. During restrictions, the price of reclaimed nickel went as high as $3 a lb. In recent weeks, this price has dropped to about $1.25 per lb, indicating that the conviction that nickel controls aren't long for the books did have a deflating effect on prices.

Reviewing the brightwork situation, platers are cut to about 40 pct of pre-Korean war nickel use. Nickel is restricted on automotive uses to an average thickness of .001 in. on functional parts. A flashing of .00005 in. is permitted on non-functional trim. In pre-Korea days, bumpers, for example, had a nickel thickness of a minimum of .0015 in., but in spots had as much as .005 to .006 in. of nickel, depending on the design.

No Quick Improvement . . . Because of the high rate of auto production, few auto companies can admit to reaching even the permitted thickness of nickel on their brightwork. The so-called flashing is so thin that it affords scant protection, but has improved adhesion where clear enamel is used and added to the quality of lustre.

Most plating experts believe that even when nickel controls and end use restrictions are lifted, brightwork improvement will be gradual instead of a sudden return to pre-Korean standards. A tremendous amount of anode inventory is required and it will take some time to build it up before plating facilities are stocked to take the demand.

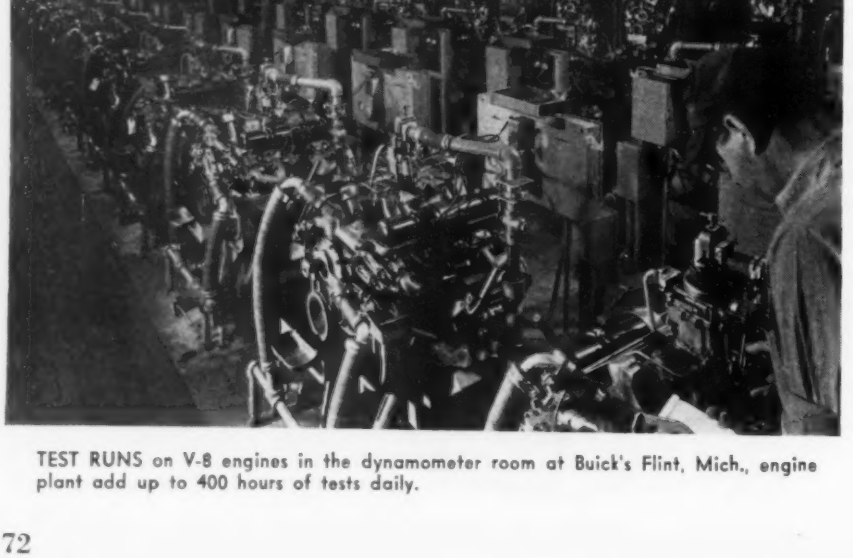
Then there is price to consider. Lifting of controls might have a skyrocket effect. On the other hand, considering what happened to the price of reclaimed or foreign nickel at the hint of decontrol, prices might not jump to unreasonable levels at all.

Experimentals Click . . . When this year's new models were introduced, three General Motors divisions brought out new lines of cutdown convertibles that were not quite stock cars and not quite sports cars.

These were the Buick Skylark, the Cadillac ElDorado and the Oldsmobile Fiesta. At that time only Buick professed full intentions to produce its car for sale. Cadillac was a little more reticent, and Oldsmobile more so. But now that the model year is going into its final months, it appears that these cars have passed the sales test and met manufacturing requirements with enough success to assure continuation of the lines next year.

Buick Pushes Hard . . . Buick went into this field with the most zest and kept the Skylark's price down to a comparatively low figure.

Turn Page



TEST RUNS on V-8 engines in the dynamometer room at Buick's Flint, Mich., engine plant add up to 400 hours of tests daily.

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As a result, the Skylark has had the best success.

By the first of August, about 1400 Skylarks had been built and the division faces a sizeable backlog of unfilled orders. Buick has not disclosed plans for a 1954 Skylark, but its early success would appear to deserve a second model.

The Skylark carries a price tag of $5000 at Flint, the El Dorado $7750 at Detroit, and the Fiesta $5700 in Lansing. One reason for the Skylark's lower price is that it has fewer modifications from a conventional Roadmaster convertible while the Fiesta, for example, has a souped up engine and special features that increase its cost.

Not Dream Cars . . . A lot of the price of each is attributed to the load of costly accessories as well as the cutdown design. They all carry special wheels, power steering, power brakes, and special upholstery with the most exotic colors.

These luxury convertibles, which are all adapted from more or less conventional models, are not to be confused with GM's plastic dream cars. Of these only the Chevrolet Corvette is being produced although the styling features of all will be reflected in 1954 models.

Corvette Gets Around . . . The Corvette is reported to be on production schedule, 300 a month. They are going to only a select list and even at the accelerated rate of 1000 a month scheduled for next year, it will be a long time before each of the 7600 Chevrolet dealers has one go through his hands.

At that, already one can be seen occasionally on Detroit streets.

Oh, That LeMans . . . Automotive reporters finally got a chance to see what one of GM's glamor cars would do when they were permitted to take the wheel of the plastic bodied Cadillac LeMans. The LeMans is strictly an exhibition car and only two have been manufactured. It has a regular V-8 engine block equipped with a new manifolding and a dual bank of quadruple carburetors. In spite of the extra push, none of the fourth estate could get more than 110 mph out of the LeMans at the GM proving ground.

Opinion was unanimous, however, that at that close to the ground (the LeMans is 5½ in. lower than the standard convertible), that was fast enough.

Automotive Production
(U. S. and Canada Combined)

WEEK ENDING	CARS	TRUCKS
Aug. 15, 1953...	128,207*	25,226*
Aug. 8, 1953...	114,671	23,000
Aug. 16, 1952...	25,923	10,967
Aug. 9, 1952...	35,038	8,926

*Estimated . Source: *Ward's Reports*

Tooling:

Innovations expected on V-8 Ford, Mercury, Pontiac engine

Many tooling innovations are sure to emerge from the engine programs which will produce new V-8 powerplants for 1954 at Ford, Mercury and Pontiac.

Each new engine in recent years has been accomplished with new gimmicks in automatic handling, transfer machines, machining techniques and assembly improvements.

One that is sure to attract attention and lead to further developments is an automatic nut-torquing assembly machine developed by the Hautau Engineering Co., Ferndale, Mich. Two of these machines have already been delivered to one plant for use on its 1954 V-8 engine block.

This particular machine will be used to tighten ten main bearing cap screws automatically, working in conjunction with an in-line conveyor that presses ten dowel pins in the bearing caps ahead of the nut tightening operation. This type of job has previously stopped inroads of automation, leaving it up to individual nut tightening by one person with single wrench.

Although the machine will afford tremendous cost cutting possibilities, it was actually work quality that sold the machine to this particular auto plant. It may be the first automatic torquing operation in the auto industry although this manufacturer has supplied similar machines to the aircraft industry, but for a much slower assembly rate.

THE BULL OF THE WOODS — **By J. R. Williams**

OKAY, PETE! I FOUND HIM-- HERE HE IS!
WHAT GOOD DOES IT DO THE BULL OF THE WOODS TO HAVE A STAFF IF HE CAN'T VISIT AN OLD FRIEND FER A FEW MINUTES WITHOUT BEIN' HUNTED DOWN LIKE A PACK OF HOUNDS AFTER A FOX?
THAT'S BECAUSE HE NEVER TRAINED TH' PACK! HE'S CARRIED MOST OF TH' STUFF IN HIS HEAD FER SO MANY YEARS THAT TH' PACK STILL DON'T KNOW IF HE WANTS 'EM TO HUNT FOX ER RABBITS!
NO ESCAPE
J.R.WILLIAMS 8-21
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Cobalt Chrome . . . for long-run dies, possesses superior abrasion resistance, holds a super keen cutting edge.
Select B . . . a 5% chromium air hardening die steel, easily machined, long wearing, has maximum toughness.
Olympic . . . a die steel perfectly balanced for toughness, wear resistance and machinability, popular for intricate cold work applications.
GSN . . . the oil-hardening steel in this group, combines high hardness and compressive strength with excellent wear.
BR-4 . . . a "bear for wear"—this patented super abrasion resistant die steel provides the ultimate in wear resistance.

The cost of the finished dies you make or use is far too great for you to gamble with expensive failure during or after fabrication because of inferior raw materials. Avoid this risk—specify "DESEGATIZED" die steels for your next cold work dies.

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Taft-Hartley Changes Will Be Hard Won

Secretary of Labor Durkin's "substantial" changes of T-H law will not be won easily, if at all . . . Distress areas get low bid priority in government work—By G. H. Baker.

The "substantial" changes in the Taft-Hartley law that Secretary of Labor Durkin says Congress will write next year will not be won easily. They may not be written into law at all.

A number of members of the Senate and House Labor committees are privately appalled at how far the Administration seems willing to go in revising the Taft-Hartley law. Some congressmen fear the suggested changes listed in a recent "confidential" White House memorandum (not officially released) practically spell out a reversion to the Wagner Act. They are determined to block any move to emasculate the existing law.

The purported White House message that was "leaked" to the press lists 19 recommendations for "improving" the Talf-Hartley law. Among them: Ending, in effect, the present ban on secondary boycotts, and repeal of the "right to work" laws now on the books in 12 states.

Low Bid Ruling . . . In bidding or negotiating for government contracts, manufacturers located in unemployment areas now are permitted to meet the low bids of more fortunately situated firms.

The new federal appropriation law which governs Defense Dept. spending in fiscal 1954 makes this provision. But it forbids the Defense Dept. to pay any "premiums" to military contractors located in so-called "distress areas" of unemployment. No "price differentials" may be paid. Under the previous law, price differentials were authorized, but were never actually paid.

Distress Area Priority . . . Rep. Richard B. Wigglesworth (R., Mass.), chairman of the House Military Appropriations subcommittee, says the new provision will not change the earlier practice, except that prices paid to contracts in "distressed areas" cannot exceed the prices paid elsewhere.

Clang, Clang Goes Trolley

More federal employees on official missions may be taking the trolley this year if Budget Director Joseph M. Dodge has his way. He is alarmed at the liberal use being made of government autos. More than 20,000 such cars, not including military vehicles, are buzzing around America.

Mr. Dodge, in wanting to achieve every economy, has ordered government agencies to report by Oct. 1 on how to cut expenses by cutting use of autos and limousines. He implies that public transport facilities shouldn't be too much of an inconvenience for the government employee.

"If the price is the same in both areas, presumably the contract will go to distressed areas," he says.

States Seek Cash . . . States whose unemployment compensation funds are exhausted—or nearly so—are pinning their hopes for federal financial aid on next year's session of Congress.

Both the Senate and the House were under heavy pressure in the closing days of this year's session to vote monetary assistance. But leaders decided to postpone action on the bill (H. R. 5173) which sets up a loan fund for states whose unemployment compensation funds are depleted. Senate Finance Committee, in voting to table the bill, agreed that special hearings were necessary. Lack of time prevented further consideration of the measure.

Throw Cold Water . . . Federal transportation regulators decline to share in the Administration's general optimism for continued prosperity.

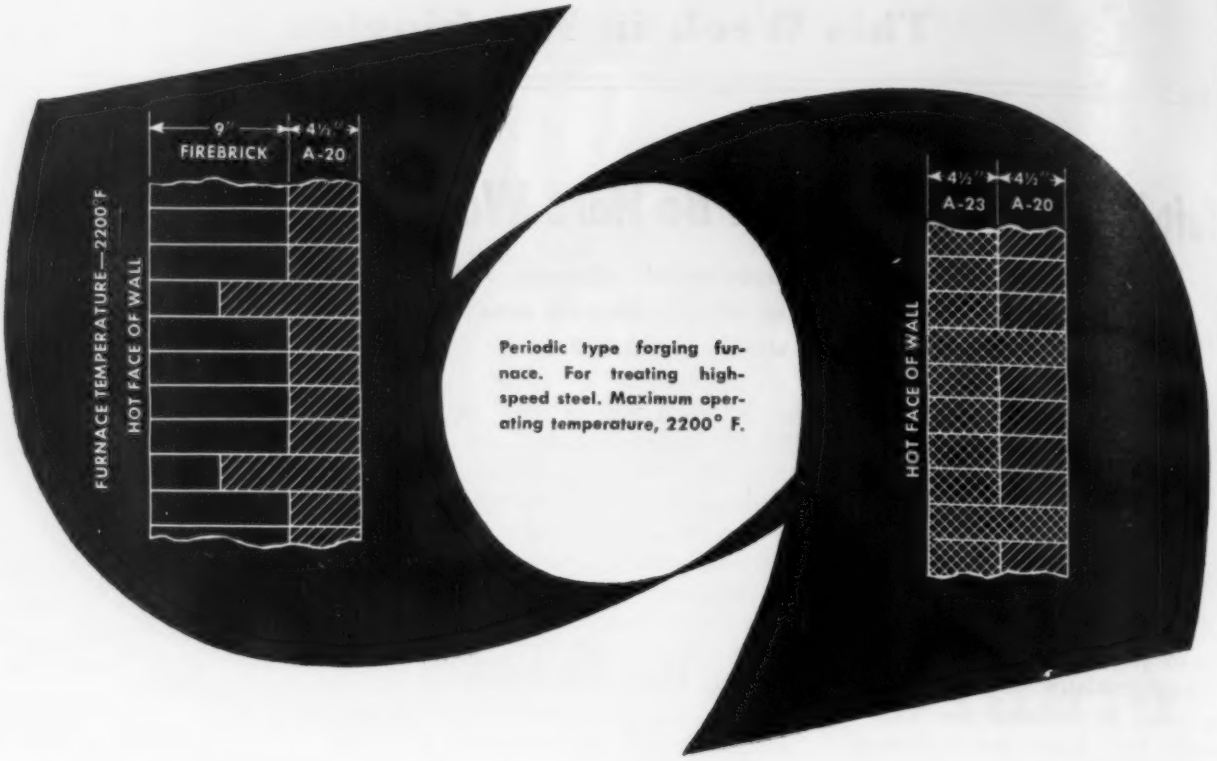
"Incalculable" factors (pressures of inflation or deflation, taxes, labor problems, foreign affairs), make it impossible to forecast with accuracy, the Interstate Commerce Commission believes. Its views were made known last week in a 74-page document explaining why it refused to grant the railroads' request that temporary rate increases granted last year be made permanent.

Consumer ability—and willingness—to increase purchases of goods, plus the readiness of manufacturers to add further to plant capacity are not definite prospects, as the ICC sees it.

Less Industry Paperwork . . . Government planners are fighting a losing battle for more detailed reports on industry's use of metals. Latest result: Less paperwork for metal-producing and metal-using industries.

National Production Authority, following top-level conferences with industry representatives and White House officials, has decided to abolish its principal metal-use form (NPAF-1) after all reports covering second-quarter activities are received. Reports covering the third quarter of 1953 are not required.

Takes Industry Side . . . Prior to the decision to abolish NPAF-1, a group of NPA officials had sought permission from the Office of Defense Mobilization to extend, not curtail, the reporting form. The White House nixed the idea, took industry's side.



Periodic type forging furnace. For treating high-speed steel. Maximum operating temperature, 2200° F.

Which furnace construction produces faster heat up?

Here are two possible ways to build the walls of a periodic type forging furnace.

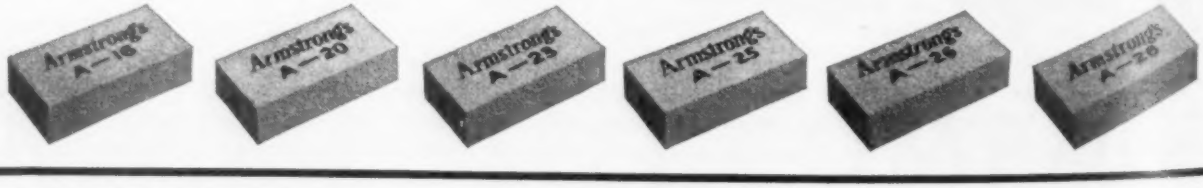
In the design on the left, the furnace is lined with 9″ of regular heavy duty fire brick, backed up with 4½″ of Armstrong's A-20 Insulating Fire Brick. Heat loss through this construction is 476 Btu's per square foot per hour, and heat storage is 52,281 Btu's per square foot of wall area.

See how those figures drop when, as shown at the right, 4½″ of Armstrong's A-23 Insulating Fire Brick are substituted for the 9″ fire brick lining. Now, the heat loss is reduced to 412 Btu's, and heat storage to 11,251 Btu's. That's a 13% heat loss reduction and a drop of almost 80% in heat storage. With this thinner, more efficient wall construction, the furnace can be brought to operating temperature much faster, with proportionate savings in fuel and production time. Temperatures are held evenly throughout the furnace, affording more uniform metal processing.

The light weight and high insulating efficiency of Armstrong's A-23's make these improvements in furnace performance possible. At the same time, these brick also have the rugged strength needed to give long service when directly exposed to furnace atmospheres.

Do you have a furnace problem?

You'll find it's a good idea to call in your Armstrong engineer on your next furnace rebuilding or relining job. His knowledge of brick performance and furnace construction will help you get top operating efficiency from your furnace. Call your nearest Armstrong office or write Armstrong Cork Company, 2708 Susquehanna Street, Lancaster, Pennsylvania.



ARMSTRONG'S INSULATING REFRACTORIES

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CONGRESS: Probes Lead, Zinc Ills

Two investigations may point way to helping domestic lead, zinc producers . . . Mining people complain government contracts favor foreign producers—By *A. K. Rannells.*

Two major investigations are slated which will directly affect, may even benefit, domestic lead and zinc producers who are backed against the wall by low prices and rising imports.

Prices and imports were the major factors emphasized by mining officials at preliminary studies made earlier this year by the House Small Business Committee.

Complain of "Dumping"

Representatives of the mining industry have especially complained about government contracts to foreign suppliers for stockpiling purposes. They also blame market-flooding with low cost foreign metal on present tariff rates.

Facts are that U. S. zinc requirements in 1952 amounted to roughly 885,000 tons. With domestic production of around 660,000 tons, requirements from outside sources amounted to about 225,000 tons in order to meet running needs.

However, zinc imports for the year added up to around 565,000 tons. Domestic producers say this amounted to dumping metal on the market with the inevitable result of depressed prices—forcing shutdowns of numerous mines.

Despite pressure by congressmen from mining states, the House rejected the Simpson Bill which would have provided a sliding scale of import duties geared to domestic production.

Tariff Study Underway

Under such a proposal, base price of lead and zinc would be fixed at 15.5¢. Tariff rate would be governed by the rise and fall from this price level.

Instead of legislative action, congressional committees instructed the Tariff Commission to make a special investigation of the lead and zinc industries, paying particular attention to effect of imports on prices and employment.

The TC report to congress is due not later than Mar. 31. Commission hearings have been set to begin on Nov. 3 with the opening sessions devoted to the lead picture.

Regardless of what the tariff commission report may show, scarcely any mining state congressman believes that mere invoking of the escape clause, returning import levies to the level before the reciprocal trade agreements, will sufficiently protect the industry.

Basis for this thinking is that the maximum increase by invoking the escape clause would amount to about 1.05¢ a pound on lead.

Wage Rates Key Factor

Average U. S. lead price ranged around 13.3¢ for first half 1953. Industry says it must get at least 15.5¢ in order to survive.

According to calculations of the Small Business Committee staff, major reason for the competitive disadvantage of domestic producers is that foreign metal can be produced for at least 5¢ a pound cheaper.

For example, mining wages in Morocco, Peru, and Guatemala average about $1.50 a day in terms of Yankee Dollars, compared with the lead-zinc average of $15 to $16 a day paid in this country before recent increases.

For these lower wages, these 3 countries get productivity roughly equal to that of the U. S.

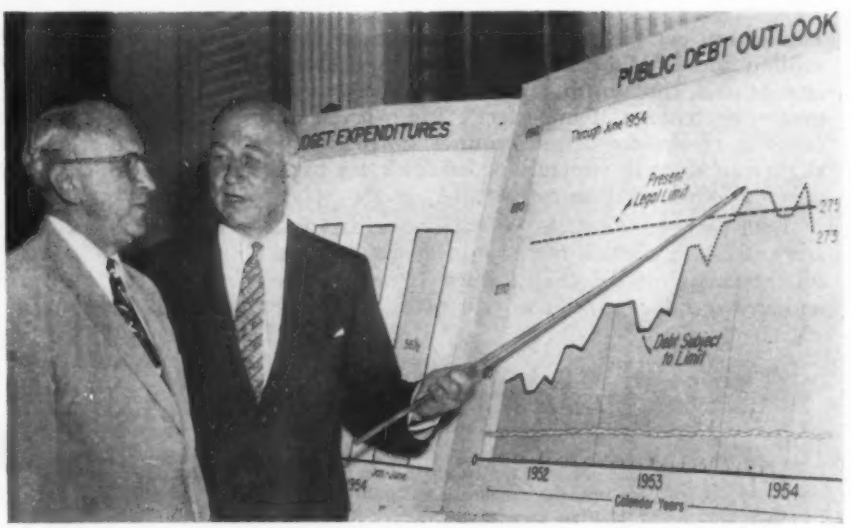
Sen. Malone Goes to Bat

A separate investigation is to be carried out by a subcommittee of the Senate Interior Committee and will be headed by Senator George Malone, R., Nev. It is slated to start the third week in September.

While the primary purpose is to review availability of critical metals in general, Senator Malone says his group will also look into complaints that foreign suppliers are getting preferred treatment, that domestic producers have been barred from bidding.

"The State Dept. policy is to pay a higher price for foreign imports than it is willing to allow American producers," Senator Malone says. "This situation is difficult to understand."

The Malone subcommittee expects to complete its work and have its report ready Jan. 31.



DEBT LIMIT of $275 billion will be exceeded by $2 billion around Dec. 1, Treasury Secretary Humphrey (right) and Budget Director Dodge told newsmen recently.

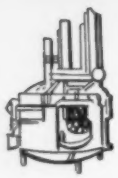
CONTROL is the key

to the unequalled performance of

WHEELABRATOR® STEEL SHOT

THESE CHECK POINTS GUARANTEE THE PERFORMANCE OF WHEELABRATOR® STEEL SHOT

MELTING

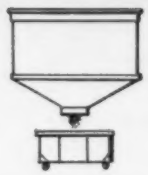


- 1. Rigid scrap selection.
- 2. Preliminary carbon and manganese analysis.
- 3. Complete chemical analysis.

POURING

- 4. Accurate and continuous control of pouring temperature.
- 5. Accurate and continuous control of quench temperature.

FIRST SCREENING



- 6. Visual and metallographic inspection in as-cast condition.
- 7. Hardness check in as-cast condition.
- 8. Continuous inspection of screening operation.

DRYING and SHOT CONDITIONING

- 9. Recording temperature control.
- 10. Removal of objectionable material.

SECOND SCREENING

- 11. Continuous inspection of screens.

FIRST HEAT TREATING

- 12. Automatic control and permanent record by recording instrument of heat treat time and temperature.

SECOND HEAT TREATING

- 13. Automatic control and permanent record by recording instrument of heat treat time and temperature.
- 14. Continuous tests for hardness and carbon content.
- 15. Continuous microscopic inspection.

FINAL SCREENING

- 16. Continuous inspection of screens and shot.
- 17. Daily laboratory checks of screening accuracy.

BAGGING

- 18. Continuous inspection of shot.
- 19. Daily shot breakdown tests.

How many perfect castings do you make in a hundred million pieces? One average shipment of shot, either iron or steel, contains that many individual castings. The greater percentage of imperfect castings it contains, the faster it breaks down and requires replacement. Even slight variations in structure or hardness can have a tremendous effect on cleaning costs.

After years of research, Wheelabrator has developed and patented a method for producing shot with an absolute minimum of defective pellets. It took a new plant and new production methods in order to achieve this quality and there are 19 CONTROL CHECKS to see that it is maintained.

This new "Wheelabrator" Steel Shot is made of the finest electric furnace steel which is heat treated to a tempered Martensite microstructure the hardest and toughest of the iron carbon alloys. It is given a double heat treatment at automatically controlled temperatures to provide a new standard of toughness, solidity, uniformity and efficiency.

FOR YOU this means less abrasive to buy, fewer machine parts to replace, less maintenance labor required and lower freight costs.

Bulletin 89 tells the complete story about "Wheelabrator" Steel Shot and what it means to the user in terms of performance and economy. Write for your copy today.

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Air Force Wins Over Scrap Dealers

Western nonferrous scrap trade despairs of victory in battle over aluminum sweating furnaces . . . Wilson approves two Air Force units . . . Charge impure ingots—By T. M. Rohan.

West Coast nonferrous scrap dealers were about ready to throw in the towel last week in their latest campaign.

Over stringent objections locally and in Washington by Waste Material Dealers Assn. and Institute of Scrap Iron & Steel, Defense Secretary Charles E. Wilson last week gave the go-ahead for aluminum sweating furnaces at McClellan Air Force Base near Sacramento, Calif., and Tinker Field, near Oklahoma City.

Hopes Dim . . . One western dealer who pleaded the case at hearings in Washington said privately he expected to continue the campaign but saw little prospect of success. The furnaces are used to sweat aluminum from scrap into ingot form.

At present prices the scrap brings about 6.5¢ to 7.5¢ per lb on a 50-60 pct reclamation basis while ingots bring about 13¢ to 13.5¢, depending on analysis.

Smelters Idle . . . Dealers have contended the latest Air Force economy move is in direct competition with private enterprise. A leading Oakland firm, Associated Metals, says it has three smelters, only one of which is in partial operation for lack of business, 10 pct of which is military.

Two are portable, permitting operating adjacent to McClellan Field on company property. There are also four others in the San Francisco area plus ten or more in Los Angeles, all largely idle with employment down about 15-30 pct. Dealers have actively bid on offerings and earlier sought allocations.

Impure Ingots . . . Most dealers believe service personnel lack experience to meet purity requirements for ingots. On many made by other branches iron content has been up to 4 pct compared to 1 pct maximum tolerance required, causing alloying difficulties and necessitating price adjustments. Private sweating firms feed hot metal directly into alloy production furnaces, realizing additional savings.

The McClellan sweater, already in experimental use for a week, was built largely from scrap including two scrounged F-80 fuselages which now form a stack. Only purchased parts were a blower, two burners and bricks.

Bugs Do It . . . We can thank bacteria for more copper, says Dr. J. V. Beck of Brigham Young University, Provo, Utah.

In San Francisco last week for a bacteriological convention, Dr. Beck explained copper leaching by shredded tin cans (THE IRON AGE, Aug. 28, 1952, p. 39) as caused by an unidentified bacteria. The bugs, he said, change basic ore into a form which is deposited by a biological process, not a chemical one. When the tailings are sterilized, no copper is deposited. Dr. Beck said there is a slight possibility of introducing bacteria into other ores to increase production.

He said the copper phenomenon was discovered 30 years ago by an alert mine official who noted copper deposits on discarded cans outside a mining camp kitchen.

Munitions-Making Merchants . . . The town of Sedro Wooley, Wash., in the heart of the Northwest big timber country, was in the munitions business last week. But it took the whole town (pop. 3288) to swing the deal.

Skagit Steel & Iron Works, a local logging equipment manufacturer, had a multi-million dollar contract for 105-mm shell cases, but no adequate plant. The existing one was hemmed in by other buildings. Other towns were being looked over for a site.

Local merchants then went to work. They pledged $300,000 of 5-pct 10-year debentures to finance a new plant, optioned adjacent land and arranged for movement of houses Last week Skagit announced the $3-million plant will be built in town, the Army will furnish $2.5 million in machine tools.

BARGES carry freight cars loaded with steel to Alaskan railroad tracks. Steel was made at Bethlehem Pacific for $46 million pulp mill in Ketchikan.

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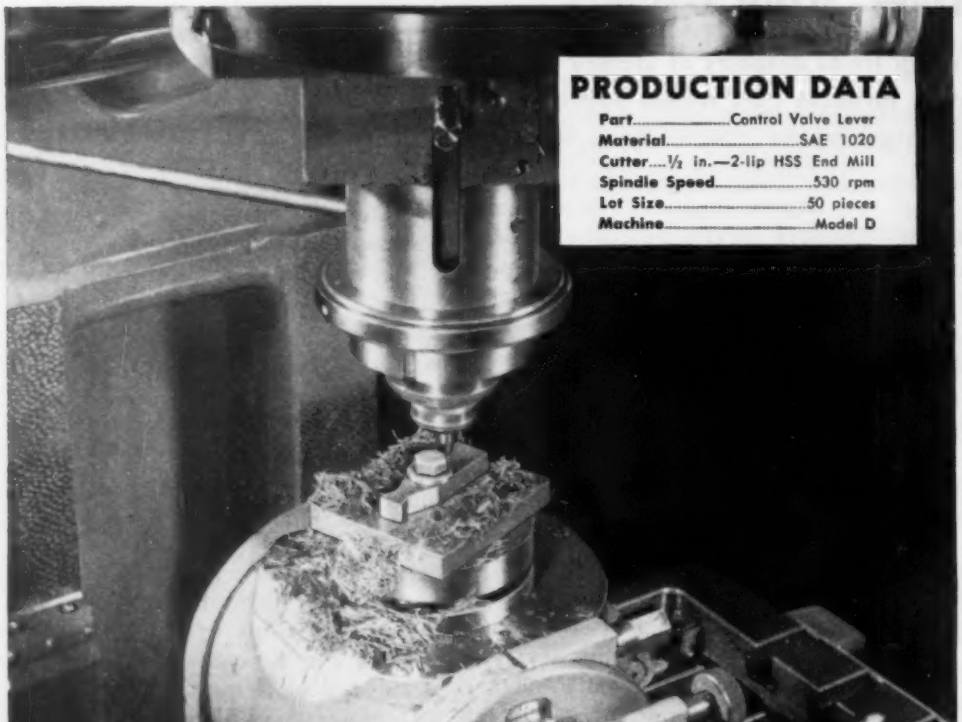
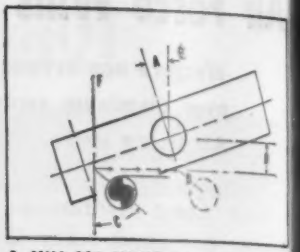
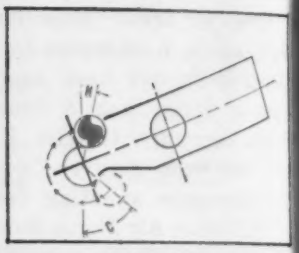
This part is finish milled direct from the blueprint, with a single setup, in 17 min.!

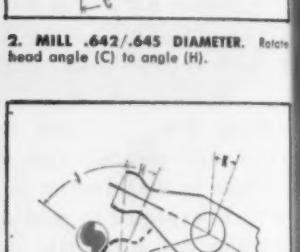




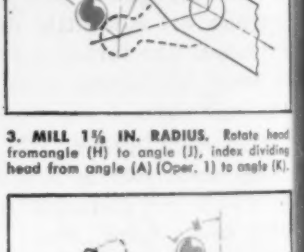
1. MILL 20° ANGLE. Index piece to angle (A), offset spindle slide to radius (B), set rotary head to angle (C), saddle to (D). Feed table (E) to (F).



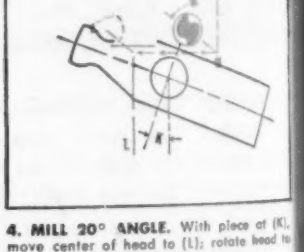
2. MILL .642/.645 DIAMETER. Rotate head angle (C) to angle (H).



3. MILL 1⅛ IN. RADIUS. Rotate head fromangle (H) to angle (J), index dividing head from angle (A) (Oper. 1) to angle (K).



4. MILL 20° ANGLE. With piece at (K), move center of head to (L); rotate head to (M). Feed table (L) to (N).



5. MILL SAME FORM ON OPPOSITE END. Repeat operations 1 through 4 by indexing the workpiece to angle (A-Oper. 1).

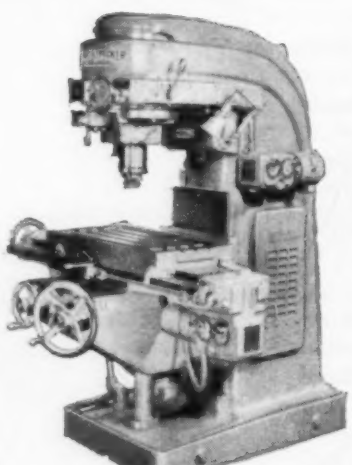
Kearney & Trecker Model 2D Rotary Head Milling Machine saves six hours on 50 piece run

HERE is another example of the tremendous time and tooling savings possible with the rotary head milling method.

This manufacturer used to complete a control lever every 24 minutes. Now the same work is completed in only 17 minutes... and no multiple setups or expensive form cutters are necessary. The blueprint is the only guide the operator needs — the machine's precise mechanical control of the cutter's angular and radial movements does the rest.

Here's the Rotary Head Milling Machine Production Idea Booklet. It contains several examples of how this method has been found exceptionally efficient in solving production, die, forging and metal pattern milling problems. It's yours for the asking.

Address requests to Kearney & Trecker Corp., 6784 W. National Avenue • Milwaukee 14, Wisconsin



THIS IS THE MACHINE that will handle your light production milling faster, easier and at tremendous savings over any other method. If you have any production problems in plastic molds, die-casting, forging and stamping dies, or selected production milling operations — investigate the Model 2D.

KEARNEY & TRECKER MILWAUKEE MACHINE TOOLS

Buckeye State Holds Tall Output Lead

Bureau of Census breakdown shows Ohio with 33 pct of national total . . . Four tool types get 75 pct of shipments . . . Grinding, polishing machines up 70 pct—*By E. C. Beaudet.*

A breakdown of 1952 machine tool shipments by the Bureau of Census shows Ohio still holding a commanding lead with 33 pct of the nation's total. The Buckeye state last year ranked first with machine tool shipments valued at $355 million.

Machine tools were built in 26 states but over 60 pct of all those shipped were made in the five East North Central States which include Ohio, Indiana, Illinois, Michigan and Wisconsin. The second strongest area was New England which produced about 30 pct of total output.

Bulk of Trade . . . Four types of machine tools accounted for 75 pct of the total number shipped. These include lathes, grinding and polishing machines, milling and boring machines.

Lathes shipments during 1952 increased 68 pct over 1951 to reach $286 million. Of this, 31 pct of the total value was for engine lathes.

Register 70 Pct Gain . . . Shipments of grinding and polishing machines amounted to $205.6 million, up 70 pct over the previous year. These totals do not include gear tooth grinding, honing, lapping, polishing and buffing machines. Milling and boring machines scored increases of 97 and 126 pct, respectively, to total $147.9 and $159 million worth of shipments.

As in 1951 the major number of milling machines shipped were of the knee and bed type. Eighteen percent of the total volume of boring machines was represented by shipments of 1380 precision boring machines.

U. K. Joins the Act . . . Added significance is being attached to the all-European machine tool show, to be held at Brussels in September, because of the British machine tool industry's entrance into the European Committee for the Cooperation of Machine Tool builders.

The British are participating in the Brussels show and will cooperate in the Committee's objectives.

The German machine tool builders association reports the committee will not try to build up a cartel or reduce competition. Among its objectives are the furthering of research, exchange of technical information and greater understanding of certain aspects concerning machine tool imports in member countries.

Mild Protection . . . The last point is important in that it may lead to certain voluntary restrictions on sales from one country to another and establish some type of mild protection for the national industries.

Price reductions ranging from 4-6 pct on light tools and 4-6 pct on heavy tools are expected at the show. Emphasis will be placed on simplification of machine tool design and easier terms of payment.

Will V-8 Bow In? . . . Whether or not Pontiac will be able to introduce its new V-8 engine in time for 1954 models is still in the doubtful stage. As with other companies embarked on engine programs, Pontiac is making considerable effort to get deliveries on special engine tooling.

A great deal may depend on Pontiac's ability to improvise with temporary tooling in the event that all machines are not delivered before the end of the year.

Placements by Chevrolet are being made regularly. Indications are that all major pieces of equipment for the new Chevrolet V-type engine call for delivery by the end of the first quarter of 1954. A Plymouth V-8 tooling program is expected to reach the order stage soon.

Activate Program . . . Packard's tooling program, inactive for several months, has recently been reactivated. It now appears that most major engineering decisions have been made. This engine is due in 1955.

During recent weeks a number of Buick placements have been reported. Most of this equipment will be used, it is believed, to increase Buick engine production to cover the Special line of cars. Both the Buick Super and the Roadmaster now have V-8 high compression engines.

Meanwhile, tooling for the new Ford and Mercury overhead valve engines is virtually completed and Ford is reported to be making preparations to increase the capacity of its Cleveland engine plant. An unconfirmed report indicates Ford is planning a new metal stamping plant in Cleveland.

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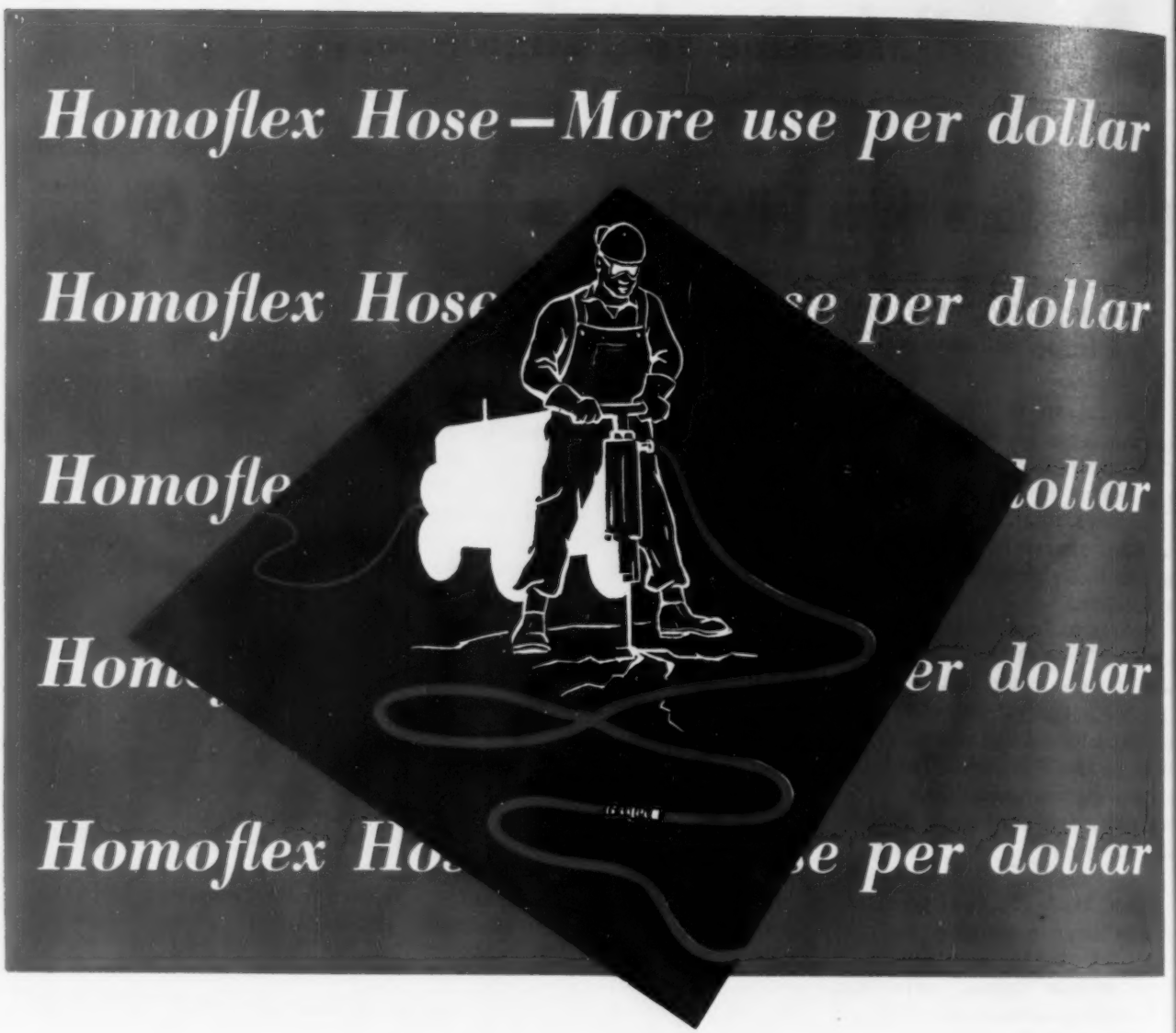
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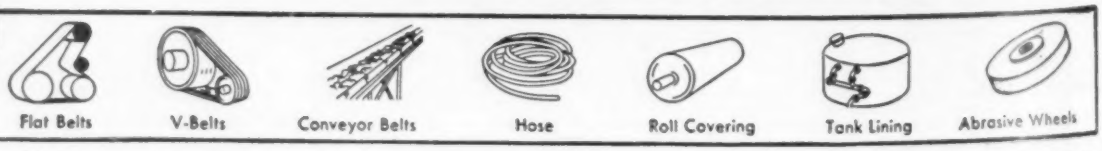

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REPORT TO MANAGEMENT...

Armchair salesman must go

Sales conference chest thumping has alerted you to imminence of rough and ready competition, a taste of which you are getting now. During this era of vanishing armchair salesmanship, you will be further impelled to get rid of inertia and caulk up the seams of your productive plant.

What are benefits of competition?

Don't believe heightened competition will degenerate into solely a price-slashing struggle. That's the dark background of the picture. A golden foreground is promotion of initiative, efficiency, productivity, lower costs, new and improved products. Continuing spirited, with no sign of serious impairment, your large market will stay large, but be more discriminatory.

Output trend eventually up

Even the most pessimistic of economists will concede the eventual production trend is up. If that much-heralded adjustment period eases in next year, gross national product rate will not veer much below the current $365 billion per year. A slight decline is by no means a calamity. Remember, last year the product rate was $360 billion and pre-Korea, only $280 billion.

Can market be glutted?

Is industry really glutting its market, obliterating pent-up demand? Analogous to that kind of worry wart thinking is the idea that a man will eat less at dinner because he's having a heavy meal at noon. In 1949 economists saw recession inevitably arising as postwar demand was met. Yet in 1950, before Korea, demand rallied and led to a buoyant production rate.

Profit margins on catwalk

Did you note that net profits of 550 firms surveyed by National City Bank rose 17 pct this year as contrasted to the like first half of '52? Yet it's claimed profit margins are perilously narrow, counteracted only by high sales volume. With price shading, moderate shrinkage of the market, profit margins can be further squeezed. Rallying to your cause will be numerous compensating factors.

Factors on your side

Any mild price deflation against your goods will accordingly lower cost of goods you buy. Cutting excise taxes on many metalworking products next year will substantially nick price tags with no pain to industry. Taxes will certainly be cut, reducing your operating costs, swelling the buying market. Inflationary fires will remain as embers, generating little heat. Labor costs are expected to remain fairly static, wage hikes kept within realistic bounds. Gross average weekly earnings of industry workers held constant at about $71.50 this year, higher than 1952's average of $67.97.

Insight into peak employment

You may see competition wither marginal firms, elbow marginal labor to the sidelines. Overtime will be vulnerable to a decrease. But hazards of mass layoff can be discounted despite panic publicity which may be given to selected layoffs of some plants. Our productive plant today is at peak employment of about 48.8 million people. Any higher than that and workers would have to come from wheelchairs. Last year 47.9 million were on payrolls while in war year 1943, 42 million were employed and in '49 only 43.2 million. Since 1950 about 4 million workers entered industry. A moderate decline in employment won't indicate recession.

You'll be in there pitching

Your demonstrated ability to cut operating costs, lever up productivity, will be another resource against competition. "Campaign Efficiency" will be a boon to those industries making automatic controls, electronic equipment, instruments, computers, machinery.

August 20, 1953

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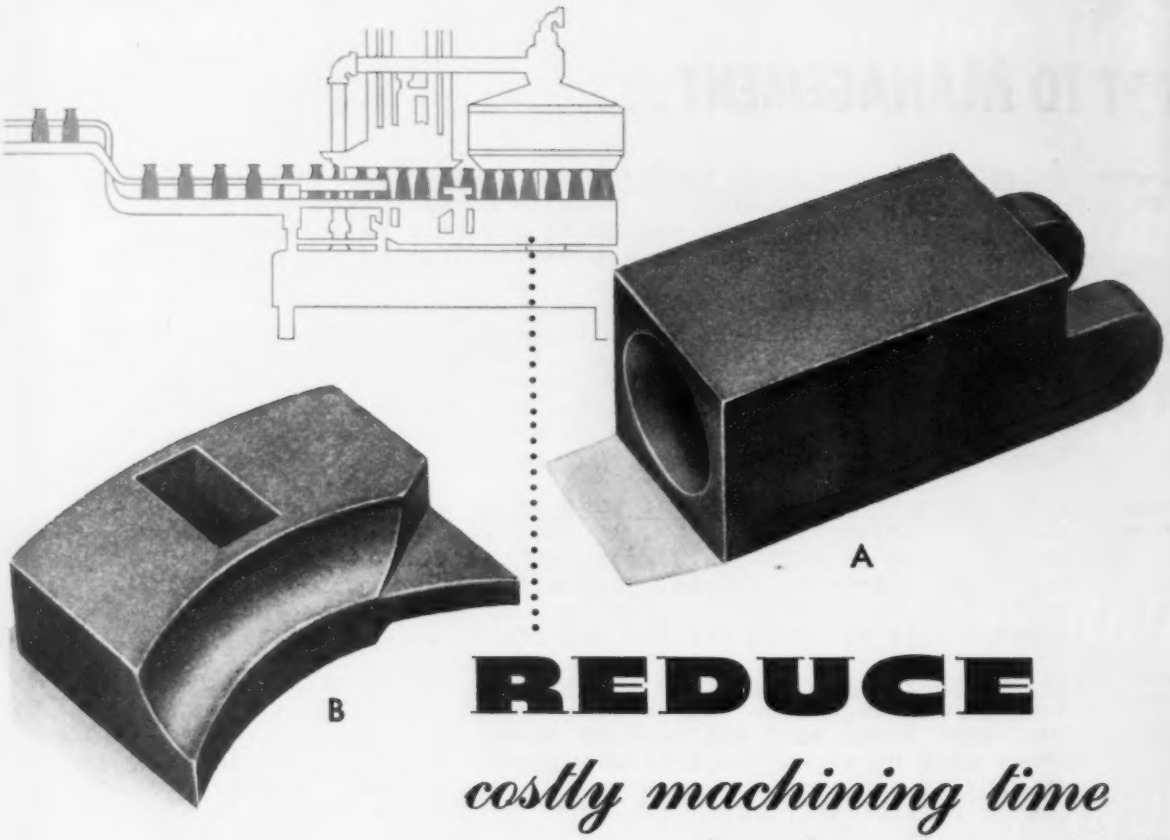

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In many cases life of component parts can be greatly extended by using castings of high-alloy grades impractical to machine. The ring illustrated (casting C), used in a fine wire feed mill, is an investment casting made of Crucible *Rexalloy*, a non-ferrous cobalt-chromium-tungsten alloy steel providing exceptional wear and abrasion resistance.

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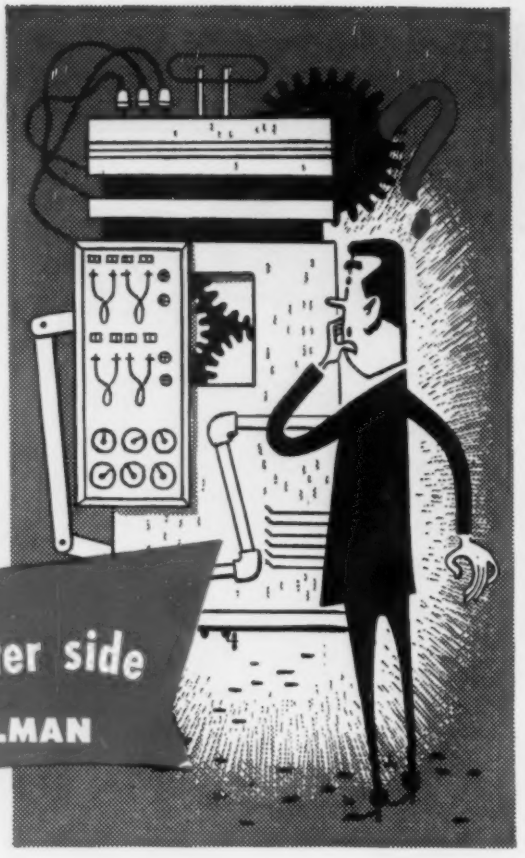
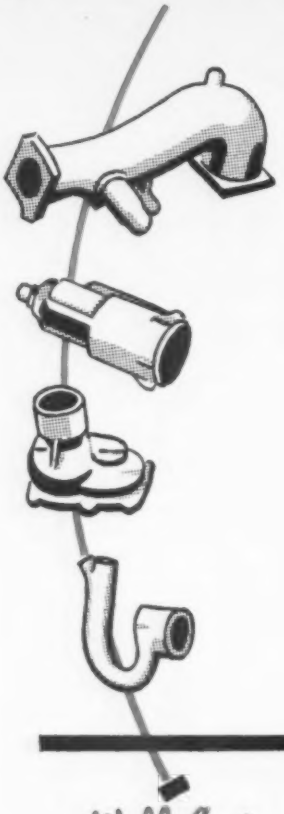
The freezer's automatic
The stove and TV too
The washer shuts itself off
Then starts itself anew

The car's a Mushomatic Eight
Remote controlled by knee
And who's in charge of all
this stuff?
Unautomatic me!



CASTINGS
on the lighter side
by WELLMAN



If weight is a factor in the product *you're* in charge of purchasing, engineering or manufacturing, turn *automatically* to WELLMAN.

We've been in charge of producing castings on the lighter side, aluminum and magnesium, for almost half a century. Our four complete plants assure you the controlled quality and the easy machinability that help shut off your production problems.

Catalog No. 53 will fill you in on the details.

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—Free Publications—

Continued

Arc furnace control

How the "Regulex" arc furnace regulator automatically balances arc current with arc voltage to permit increased tonnage at less kilowatt hour consumption is described in a new 8-p. bulletin. Included is a schematic diagram of a three-phase arc furnace electrode control using "Regulex" regulators, a curve which depicts how for any given tap voltage the optimum current control maintains arc at the point of maximum power. *Allis-Chalmers Mfg. Co.*

For free copy circle No. 13 on postcard, p. 87.

Troughing idler

New variable troughing belt conveyor idler is designed to provide smooth belt transition between troughing idlers and flat pulley. It is described and pictured in a new 48-page book that also includes a list of more than 500 belt conveyor idlers in 34 types. *Link-Belt Co.*

For free copy circle No. 14 on postcard, p. 87.

Color harmony

Described in a new pamphlet is Rust-Oleum's new color harmony for plant interiors, and for machinery. Kind of surfaces on which to use this Restful Color Group and color suggestions are covered. *Rust-Oleum Corp.*

For free copy circle No. 15 on postcard, p. 87.

Terne metal roofing

A story on two new machines designed to reduce the time and labor required for installing terne roofs is told in latest issue of Terne Topics. These are hand-operated pan former and the electrically-operated seamer. A four-page insert uses line drawings to describe methods of constructing and installing valleys and gutters of Terne Metal. *Follansbee Steel Corp.*

For free copy circle No. 16 on postcard, p. 87.

Welding catalog

Weldit is offering a 28-p. catalog on its complete line of equipment. Included are torches, furnaces, tips, burners and other welding equipment. *Weldit, Inc.*

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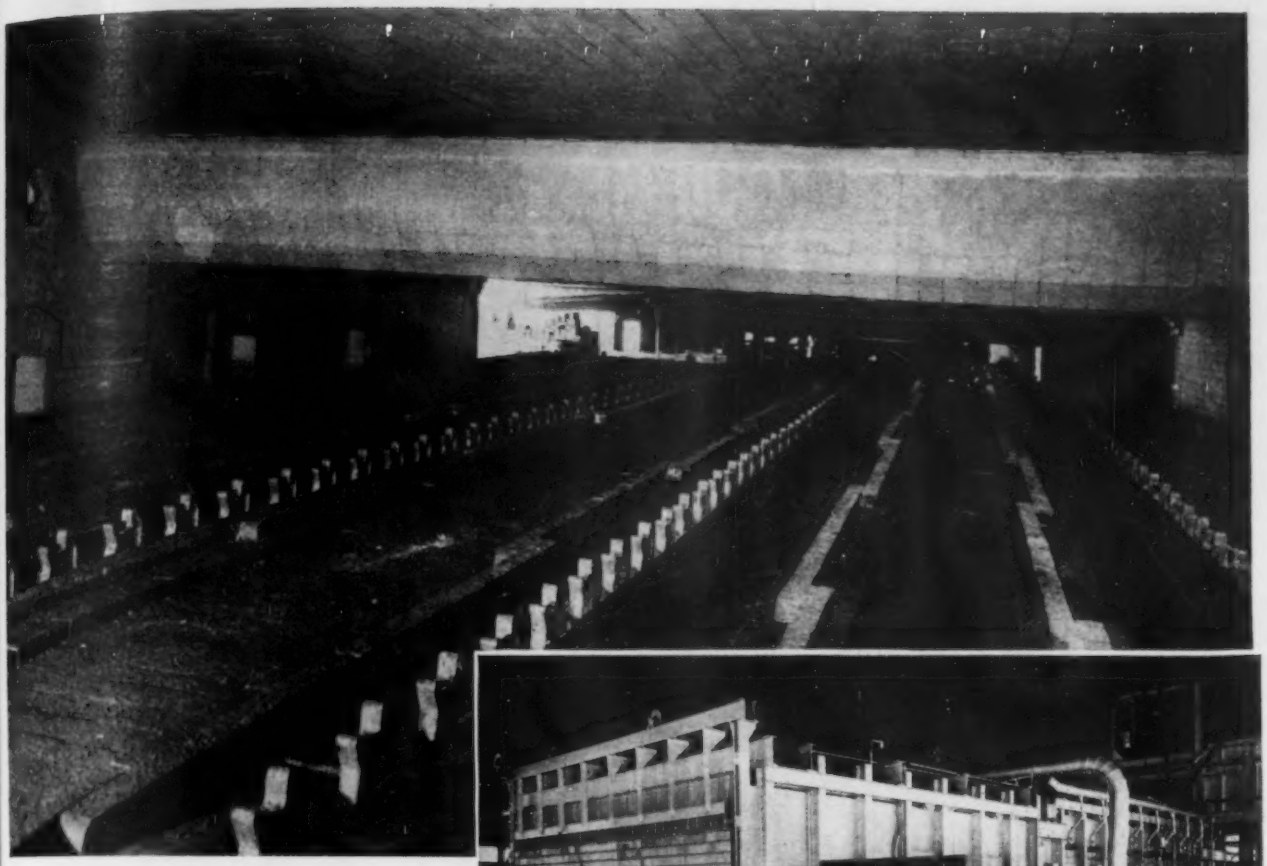
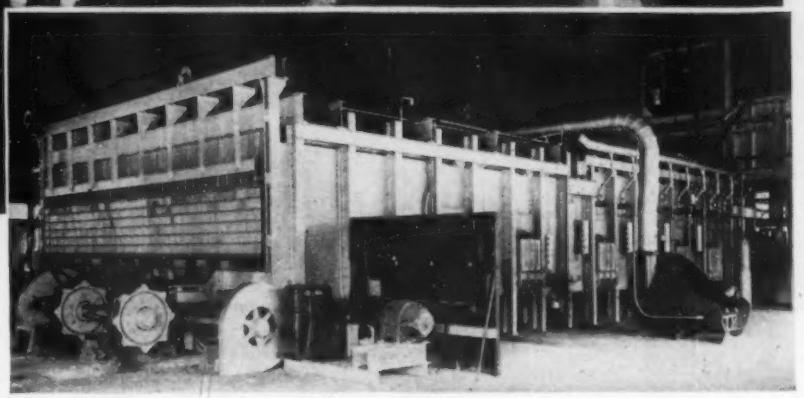


▲Looking toward the charging end of this 52-ft long furnace designed by R-S Products Corporation. The CARBOFRAX skids are staggered to provide for expansion. Toothlike conveyor chains move the pipe through the furnace.



Outside view of the same furnace. ▶

No repairs in 3 years...

but there's even more to this skid rail story

This furnace is used to anneal large cast-iron pipe. It was put in operation by Glamorgan Pipe & Foundry Company of Lynchburg, Va. in the Spring of 1947.

Week after week the CARBOFRAX® silicon carbide skid rails did their job without any attention whatsoever – *for three full years.* Then, less than half the rails were replaced. Another partial replacement followed two years later. And today, some of the original rails are still in use after six years. But this is just half the story!

These refractory skids also prevented the usual troubles experienced when water cooling is used. That is, the non-cooled CARBOFRAX rails gave a hot, point-of-contact surface so that the pipes heated evenly and were free from cold spots. Moreover, CARBOFRAX skids cost much less than alloy pipe.

CARBOFRAX skid rails can provide similar benefits in most reheating furnaces. If you have not investigated, it may pay to do so. Start by getting our complimentary skid rail booklet. Address: Dept. **B-83,** Refractories Div., The Carborundum Company, Perth Amboy, N. J.

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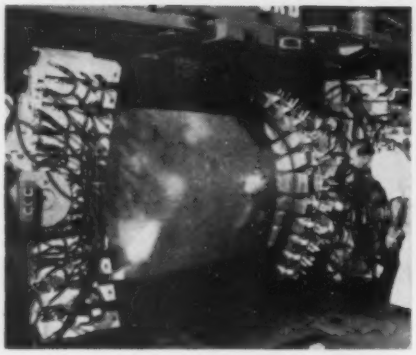
NEW EQUIPMENT

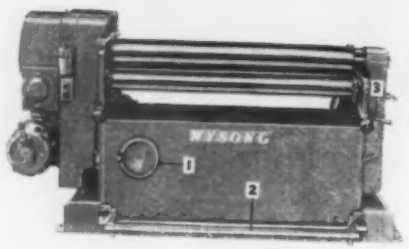
New and improved production ideas, equipment services and methods described here offer production economies . . . just fill in and mail the postcard on page 87 or 88.



Flexible jaws extend stretch-forming operations

Function of flexible jaws designed for use on all types of sheet stretch-forming equipment is to grip and curve the sheet to the cross sectional contour of the die. While held in this profile, stretch forming then completes the longitudinal curves of the part. Use of Hydra-Curve jaws is said to save as much as 30 pct of material normally allowed beyond ends of the die for transitional stresses in the sheet. The jaws are composed of numerous segments, each containing a set of hydraulically actuated grippers. Segments are hinged, one to another by pivot pins, permitting conformation to a wide variety of die curves. *Hufford Machine Works.*

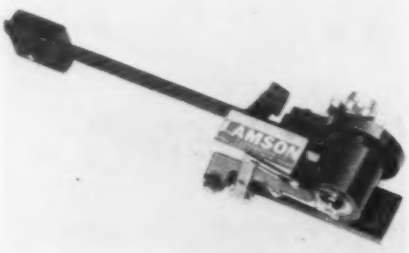
For more data circle No. 18 on postcard, p. 87.



Three new features added to 5-in. rolls

New time-saving and safety features on Wysong Series C all-steel 5-in. rolls are: 1—Fast, parallel adjustment of the rear roll by a single handwheel. 2—A safety treadle extends full length of the front of the machine. Depressing the treadle from any position immediately breaks the electric circuit and stops the machine. 3—The top roll raises automatically with the lowering of the drop end. On raising, the drop end automatically locks into position. *Wysong & Miles Co.*

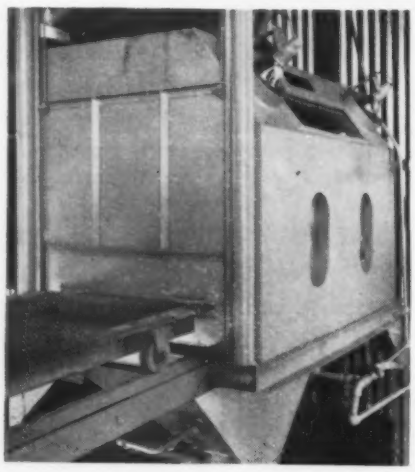
For more data circle No. 19 on postcard, p. 87.



Chain-drive overload device protects equipment

New device to protect chain drives of all types from overload trips a limit switch in the event of excessive tension on the drive leg. The protector consists of an eccentrically located idler sprocket counterbalanced by a weight-loaded arm. The counterbalance is adjustable so that the device will operate at any chain tension up to 1000 lb. Design is simple, rugged and maintenance-free. A locking lever necessitates manual resetting to energize the drive once an overload has caused it to act. *Lamson Corp.*

For more data circle No. 20 on postcard, p. 87.



Wet-blast cabinets use no rotary pump

Belmont wet blast cabinets remove surface contamination and polish with a water-suspension of fine abrasive. Complete agitation of the slurry is provided with Whirlpool device, eliminating need for agitating rotary pump. Air ejector pump with no moving parts draws liquid from the top surface and shoots it, tangentially, into the circular sump, creating whirlpool, with complete agitation. An efficient blasting gun throws more slurry at a higher speed, and reportedly cleans faster than conventional suction guns. The lightweight trigger operated gun gives instant control with a comfortable pistol grip. The abrasive ranges from 50 to 2000 mesh, nonmetallic, used with dispersing agent and inhibitor. Dry blast attachment for use of walnut shell abrasive for soft blasting is available. *Vacu-Blast Co. Inc.*

For more data circle No. 21 on postcard, p. 87.

Turn Page

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telling the story of 'dag' dispersions

Lubrication Troubles Above 500° F? Try This!

Use a 'dag' dispersion. At high temperatures it has conventional lubricating agents beat a mile. Why? Because at ordinary metalworking temperatures it doesn't burn off, flake, or gum up. It successfully battles oxidation at every temperature up to 750°F.

'dag' dispersions of graphite form microscopically thin, *dry lubricating films* which fight friction beyond the burning-points of most oils. These dry films are unaffected by heat up to 750°F. . . . under some conditions up to 3000°F.

For more details on metalworking applications write for Bulletin No. 426-13 H.

* * *

Dispersions of molybdenum disulfide are available in various carriers. We are also equipped to do custom dispersing of solids in a wide variety of vehicles.

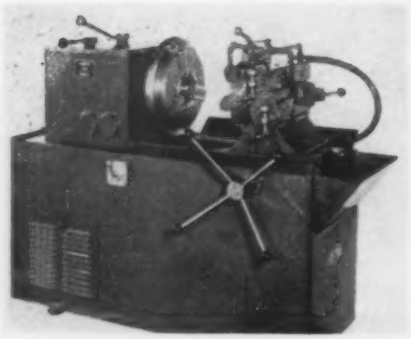
dag DISPERSIONS

Acheson Colloids Company, Port Huron, Mich.

. . . also ACHESON COLLOIDS LIMITED, LONDON, ENGLAND

Units of Acheson Industries, Inc.

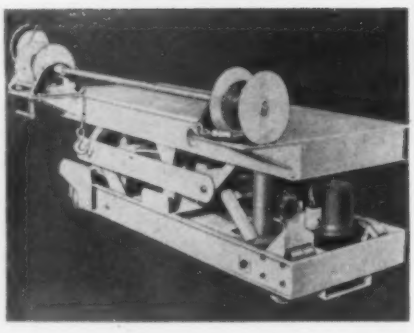
try resin-bonded dry graphite films for permanent lubrication



Thrift model pipe machine has 1 to 4-in. range

A heavy duty, fabricated steel constructed floor type pipe machine is equipped with a front chuck which requires no wrench for operation. Frequent changes of pipe sizes are effected by a spin of the hand wheel which moves the gripping jaws through the entire range in a few seconds. Rear centering chuck is quick acting and non-binding. A magnetic starter with push-pull selector switch for run and jog, controls the heavy duty, 1800 rpm 3 hp motor. Four spindle speeds are controlled by levers conveniently located to operator. Two quick-opening detachable lever operated die heads cover the entire pipe and bolt range. *Oster Mfg. Co.*

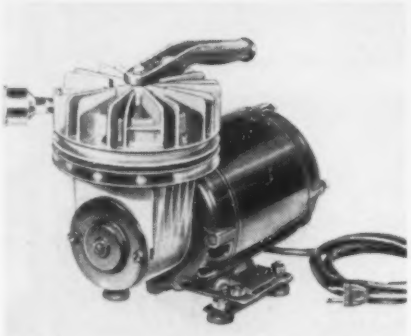
For more data circle No. 22 on postcard, p. 87.



Sheet feeding table converted for die handling

To facilitate the handling of heavy dies a winch and cable arrangement can be mounted on any of Raymond Corp.'s tables. The arrangement allows the table to do double duty; it keeps stock elevated at the correct feeding height or acts as die changing device between production runs. The winch includes a 96 to 1 gear reduction which makes manual operation possible for drawing dies weighing up to 5 tons. Dies can be drawn from a press or placed in the press by the two way operation of this winch. Winch is mounted beyond table top sides, leaving full working surface. *Raymond Corp.*

For more data circle No. 23 on postcard, p. 87.



Air compressor provides continuous volume

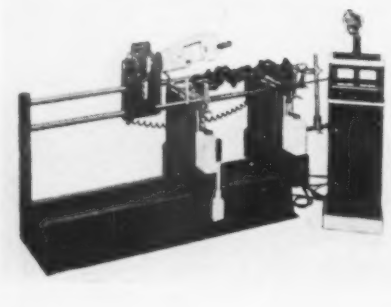
This small compact air compressor does not require a tank and provides continuous volume up to 3½ cfm and a maximum operating pressure of 100 psi. Air devices may be individually furnished with pressure at a production station, jig, or outdoor location without the necessity of running piping from plant stationary air supply, within the capacity rating of this compressor. There is no pop-off valve nor lubrication required. Continuous running during the air equipment operation is compensated for. This Series J air compressor weighs 40 lb, can be easily transported. Motor is 1/3 hp, 115/230 v, has overload protection. *Modernair Corp.*

For more data circle No. 24 on postcard, p. 87.

Handy tool for plant maintenance

Problems of routine maintenance and business housekeeping can be handled by one production tool: Lewis-Shepard Handy Hoister. Its planetary gear winch lifts faster, requires less total effort, permits smooth, precise load levelling. With the PL winch, each crank revolution lifts a 500-lb load 3-in. For specialized handling, the lifting platform can be replaced by a lifting arm for use with coils, a cradle type platform to hold rolls securely in place, a roller platform for easier removal of loads, or forks of required shape and length. Platform is 24 x 24 in. *Lewis-Shepard.*

For more data circle No. 25 on postcard, p. 87.



Industrial balancer for maintenance, production

Quick setup without a foreman, plus extreme range in capacity make the new Stewart-Warner electronic industrial balancer excellent for maintenance or production balancing. High speed milling heads, cutters, and grinding wheels may be precision balanced to eliminate marks due to vibration. Precision sensitivity is possible at all weights of items checked or balanced from ½ to 1000 lb. Length range is 4½ to 55 in. between bearing surfaces. Diametral capacity is ½ to 44 in. *Merrill Engineering Laboratories.*

For more data circle No. 26 on postcard, p. 87.

Turn Page

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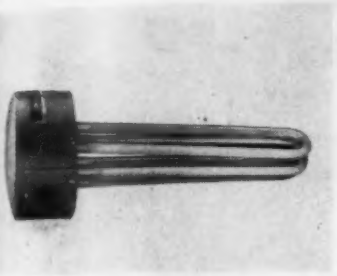
New Equipment

Continued

Immersion heater

New flanged tubular-type electric immersion heater supplements present Chromalox units used for heating water, oil or paraffin by providing higher heat output and a new size flange 5⅜ in. diam. Heating

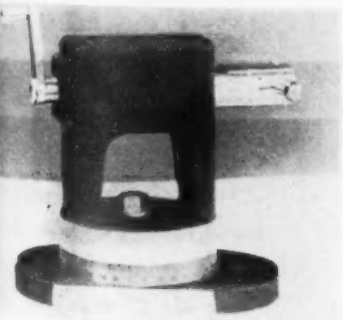


elements are available in two sheath materials. Type TM-4, for water heating has copper sheathed elements brazed to a brass flange. TMO-4 for use in oil or paraffin, has steel sheathed elements welded to a cast iron flange. Both types are single phase. *Edwin L. Wiegand Co.*

For more data circle No. 27 on postcard, p. 87.

Emery wheel dresser

The Phelco angle dresser can dress both sides of an emery wheel without disturbing the original setup. This is accomplished by means of a double-end diamond. Diamond travel is 2¼ in. with accuracy assured by a threaded shaft operated by a small hand crank. Base of the dresser is graduated in 1° incre-



ments for 360°. By a slight adjustment the fixture can be used on both cylindrical and surface grinders. No experience is required of operators. *Phelan Engineering Service.*

For more data circle No. 28 on postcard, p. 87.

Turn to Page 101

WHAT'S IN IT...

FOR YOU?

Our view of Kennametal discloses a sound, uniform physical structure that gives promise of consistently good mechanical properties. These are static until put to use on the job—translated into machining advantages for you.

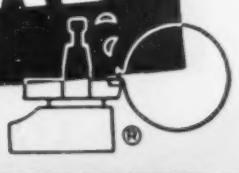
We put more of the best into Kennametal so you may get more of the best out of it.

What is in it for you? Uniform hardness, unusually high strength, great durability. What do you get out of it? Consistent tool performance, long life. These are reflected in time savings on the job, better use of machines, less grinding expense, lower production costs.

Can we prove it? Yes— there are scores of outstanding Performance Reports on a wide variety of Kennametal applications. These are yours for the asking, or we shall be glad to demonstrate by cooperating on any tooling problem in your plant. Our Field Engineers will be glad to help you. Kennametal Inc., Latrobe, Pa.

KENNAMETAL

CEMENTED CARBIDE TOOLING
THAT INCREASES PRODUCTIVITY



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Let me show these Wyandotte can cut

In metal cleaning and related operations, in paint stripping, in preventing accidents due to slippery floors, and in maintenance cleaning, you can profit by using Wyandotte's specialized products.

In case after case all over the country, Wyandotte metal cleaning and related products are reducing cleaning and processing time, eliminating extra operations, producing better results, doing the job for less cost!

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No matter what your metal-cleaning needs, Wyandotte's complete line includes a product tailored to your requirements. Send coupon for product data and your free copy of the booklet "Graphic Presentation of Wyandotte Products for Metal Working and Metal Finishing Industries."

Wyandotte has the largest field service organization in the industry. Call on your Wyandotte representative to work with you in your plant—to show you how the Wyandotte line of metal-cleaning products can help you solve finishing problems and save money.

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Helpful service representatives in 138 cities in the United States and Canada

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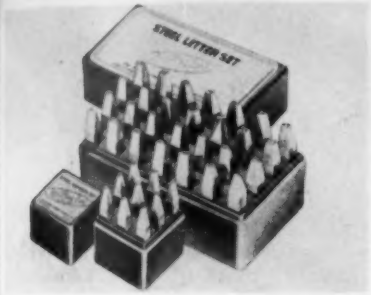
Number-letter sets

Steel number and letter sets in popular sizes are packaged in durable plastic boxes for simplified selection and easy storage. Each container is fabricated from the high quality, break-resistant plastic container, features square holes to keep stamps

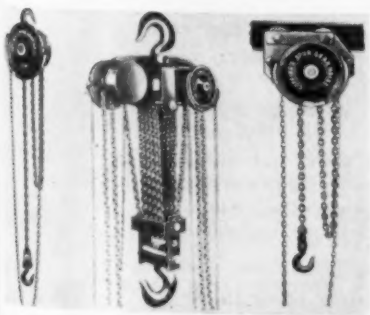


in correct position—ready for instant use. Seventeen sizes from 1/32 to 1 in. are produced with plain gothic style characters. Sets are machined from fine tool steel and properly heat treated, gaged for exact size and engineered to provide permanent impressions with a minimum blow. *Parker Stamp Works, Inc.*

For more data circle No. 29 on postcard, p. 87.

Spur gear hoists

A total of 55 different models and sizes of spur gear hoists have been added to the Coffing line. Included among the new units are 15 sizes of single and multiple-chain spur gear hoists with capacities from ¼ to 25



tons. For specialized applications, there are plain and geared Army type hoists, ¼ to 10 tons; low headroom hoists, 1½ to 24 tons; Clevis connected hoists, ¼ to 10 tons and extended hand wheel hoists from ¼ to 3 tons. *Coffing Hoist Co.*

For more data circle No. 30 on postcard, p. 87.
Turn Page

BRAINARD STRAPPING SYSTEM

Salesmen's know-how can improve your packaging and handling operations

YOU can get Brainard's complete strapping service from factory-trained Brainard salesmen throughout the U. S.—and from certain top-notch distributors, such as Wurzburg Brothers, Inc., of Memphis and Nashville, who cover a large area of the south.

Here, part of the Wurzburg sales team gets up-to-the-minute information on application of Brainard strapping and tools. This constant education benefits you—a Brainard salesman is equipped to study your operations, make recommendations and give your personnel on-the-job demonstrations.

This complete strapping service can cut costs and improve efficiency of packaging, palletizing, carloading, bundling, export crating, warehousing. Put Brainard's experience to work for you *now*. Send coupon for catalog or Strapping Analysis.

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- BILLET EJECTORS—PINCH ROLL STANDS
- SLITTERS—SPECIAL SHEARS AND GAUGES
- TILTING TABLES—TRAVELING AND LIFTING TABLES
- CONTINUOUS PICKLING LINES—ROLLER LEVELLERS
- FURNACE CHARGING EQUIPMENT—FURNACE PUSHERS
- STRIP STEEL COILERS AND REELS—SCRAP BALLERS
- RAILROAD SPIKE FORMING MACHINES—ROLL LATHES
- SHEET GALVANIZING LINES WIRE PATENTING FRAMES
- STRETCHER LEVELLERS—ANGLE AND SHAPE STRAIGHTENERS
- ROLLING MILL TABLES—GEAR AND INDIVIDUAL MOTOR TYPES
- MACHINERY BUILT TO CUSTOMER'S DESIGN AND DETAIL DRAWINGS

The Youngstown Foundry & Machine Co.

OVER SIXTY YEARS OF SERVICE TO THE STEEL INDUSTRY

Youngstown, Ohio

Portable hot plate

An inexpensive portable hot plate has been built specifically for small volume hot plate work. Sheathed nichrome heating elements are cast into the aluminum top plate insuring quicker heating (750°F in 35 min), good uniformity, and long element life. Stepless control permits precise control of temperature. Pyrodisc has diameter, top plate and base of 8 in.; power rating of 660 w.; power service 115 v, 50/60 cycle. *Lindberg Engineering Co.*

For more data circle No. 31 on postcard, p. 87.

Pocket pyrometer

Quick and accurate measurement of surface and sub-surface temperatures are obtained with a new pocket pyrometer using interchangeable thermocouples. The instrument measures 3⅞ x 3½ x 1¾ in. and has a 2.4 in. direct reading indicator scale. Shock absorbing rubber case protects the pyrometer against most shocks. Five standard ranges are available. *Cybertronic Corp. of America.*

For more data circle No. 32 on postcard, p. 87.

Automatic reversal

New packaged automatic reversal system for open hearths, regenerative soaking pits, and glass tanks features a compact panel in which reversal controls are factory assembled. Reversal can be initiated automatically by elapsed time or checker temperature, or semi-automatically by pushbutton. Unvarying reversal sequence is provided with all steps electrically interlocked for safety. Panel lights indicate firing conditions and reversal sequence. *Askania Regulator Co.*

For more data circle No. 33 on postcard, p. 87.
Turn to Page 108

WHELAND COMPANY solves warpage problem, saves time, labor and materials with

FARQUHAR Hydraulic Presses

This straightening operation utilizes a 50-ton Gap-Type Farquhar Press on an 8-hour-day production basis.

500-ton Farquhar Hydraulic Press straightens 16′ forged tubes at The Wheland Co., Chattanooga, Tenn.

THE Wheland Company, Chattanooga, Tennessee, uses Farquhar hydraulic presses to help speed production of vital defense products. For example, a 500-ton Farquhar Press is used for straightening forged tube approximately 16′ long, varying in outside diameter from 6″ to 10″, with an inside bore of 2″ diameter. This operation alone has solved one salvage problem, since less scrap results as stock distribution is equalized by straightening.

Scrap and salvage due to warpage have been eliminated in another operation, where a 50-ton Gap-Type Farquhar Press is used to straighten ⅞″ bars, 3″ wide, 65″ long. Together, the two presses have speeded production. Neither press has required any maintenance other than regular services since installation!

Farquhar Presses Cut Your Costs

Just one more example of cost-cutting Farquhar performance in modern production! Farquhar Presses are built for the job . . . assure faster production due to rapid advance and return of the ram . . . greater accuracy because of the extra guides on the moving platen . . . easy, smooth operation with finger-tip controls . . . longer life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost!

Farquhar engineers are ready to help solve your production problems. Your request will bring them running . . . at no obligation, of course.

For free catalog, write to THE OLIVER CORPORATION, A. B. Farquhar Division, *Hydraulic Press Dept.*, 1503 Duke St., York, Pa.

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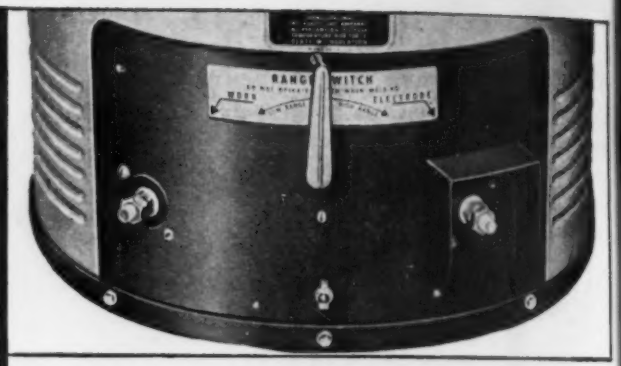
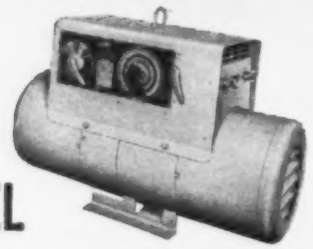
THE OLIVER CORPORATION • A. B. FARQUHAR DIVISION

NEW CONTROL SYSTEMS on M & T WELDERS for

GREATER ACCURACY and CONVENIENCE



ONE-DIAL DOUBLE CONTROL PANEL



eliminates plug-ins on **DC WELDERS**

New control system on all M&T DC Machines now makes regulation of welding current easy and positive! Simply set the electrode selector, then dial for required current . . . Welders are available in light-duty 200 amp and heavy-duty 200, 300 and 400 amp models — motor-generator or gas-driven.

RANGE SWITCH to SPEED RANGE CHANGING ON AC WELDERS

New range switch provides rapid changing from high to low or low to high range . . . No cable leads to unplug, no connections to make . . . Case mounted primary switch permits turning off welder to save current between welds . . . M&T AC Transformers, all silicone insulated, are furnished in light-duty 200 amp and heavy-duty, industrial ratings of 200, 300 and 400 amp.

Investigate these *improved* DC and AC Machines as well as M & T INERT ARC WELDERS and RECTIFIERS. They're all part of a *complete* line — second to none!

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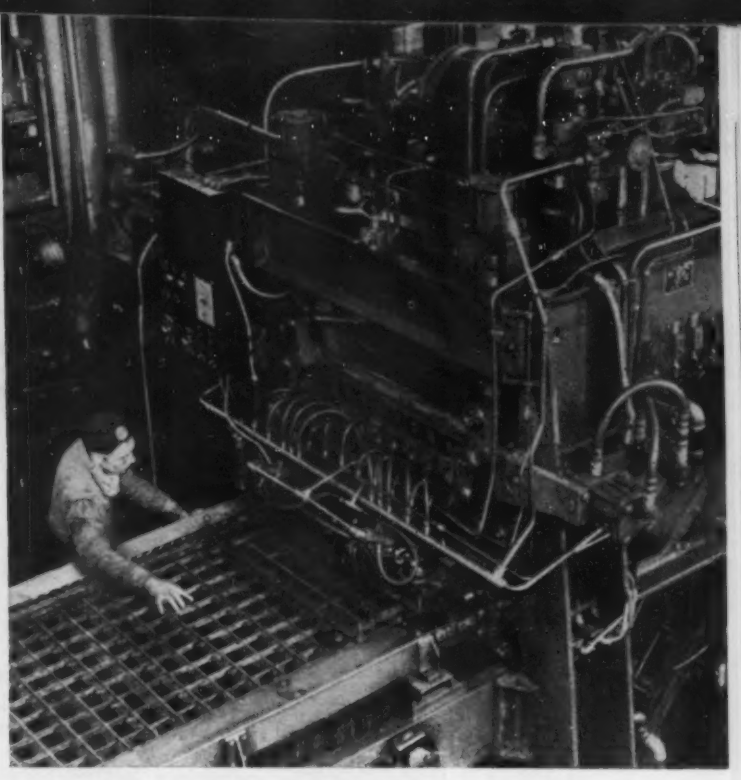
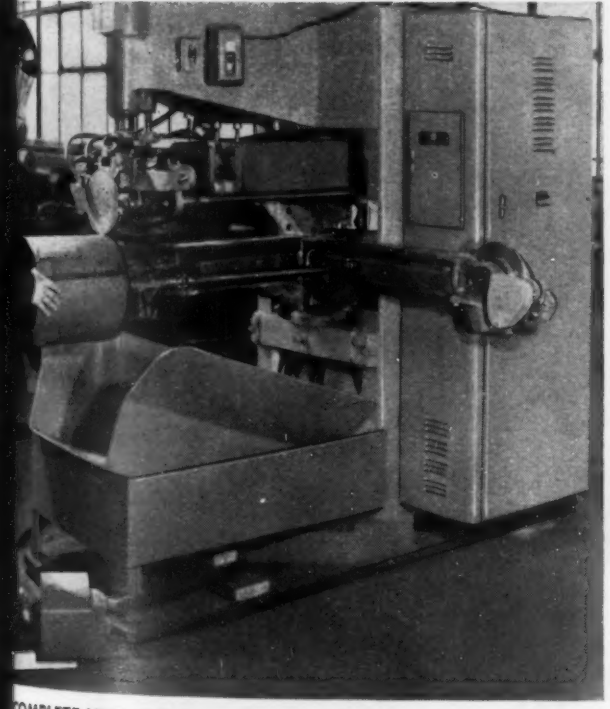


TINY DIODES OR GIANT LANDING MATS . . .

G-E Resistance Welding Controls Cut Rejects, Speed Production



COMPLETE LINE of G-E control includes synchronous-precision, nonsynchronous, three-phase, and all special-purpose accessories for all standard spot, seam, combination, or bench welders.

One manufacturer welds delicate germanium diodes so tiny that operators look through magnifying glass to see them (above, left). Another fabricates huge landing mats with a giant multiple-electrode welder (above, right).

BOTH MANUFACTURERS use General Electric controls, as do hundreds of other metal fabricators.

NO MATTER WHAT materials or product you're welding—whether accuracy or speed or a combination of the two is your major requirement—specify G-E control on your resistance welding equipment.

FOR MORE INFORMATION, contact your nearby G-E Apparatus Sales Office or your welding machine manufacturer or his agent, or write:

Section D785-5, General Electric Company
Schenectady 5, New York.

Please send Bulletin GEA-5816, "The Story of Resistance Welding," which gives the how's and why's of resistance welding and a description of G.E.'s complete line of controls.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

GENERAL ELECTRIC

HELD IN QUARANTINE

. . . and not released until proved fit!

That's the fate of all PERKINS precision, custom-made GEARS prior to shipment. The folks in our inspection department — a section of which is shown — may be a suspicious lot (never mind what some other people in our plant call them), but when they certify a gear to be sound and "as specified" you can bet your last bottom dollar that the end-product of which they ultimately become an integral part, will be a *better* product!

NOTE 1: A new product is the **Perkins Precision Spring Coiler.** This coiler (patent applied for) turns out precision springs – any type, shape, size, from wire sizes .005 to .125.

2: Another new product – the **Perkins "Bendit 15"** – a patented metal forming machine bends and shapes sheets, rods; strips tubing into innumerable complex as well as simple forms that would be difficult or impossible to make by other means. Eliminates need for expensive tools or specialized skills. Ht. 47", net wt. 200 lbs. Write today for descriptive catalogs, prices etc.

PERKINS MAKES:
Helical Gears
Bevel Gears
Sprockets
Ratchets
Worm Gears
Spiral Gears
Spur Gears with shaved or ground teeth
Ground Thread Worms

PERKINS MACHINE & GEAR COMPANY

WEST SPRINGFIELD, MASSACHUSETTS

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—New Equipment—

Continued

Cut-off valve

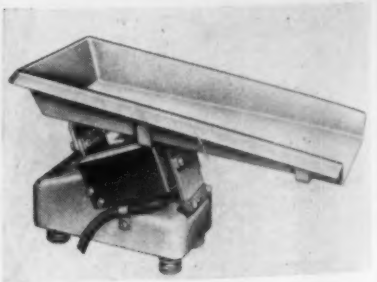
Stainless steel solenoid valve Series V61 is a cut-off type valve, designed for LPG automotive fuel systems, especially trucks, tractors and busses, features snap-shut action, and absolute, bubble-tight sealing.

Rugged and compact, it has only two moving parts and can be disassembled and serviced without removal from the line. A heavy spring return assures positive shutoff regardless of the valve's position. *Skinner Electric Valve Div.*

For more data circle No. 34 on postcard, p. 87.

Small feeder

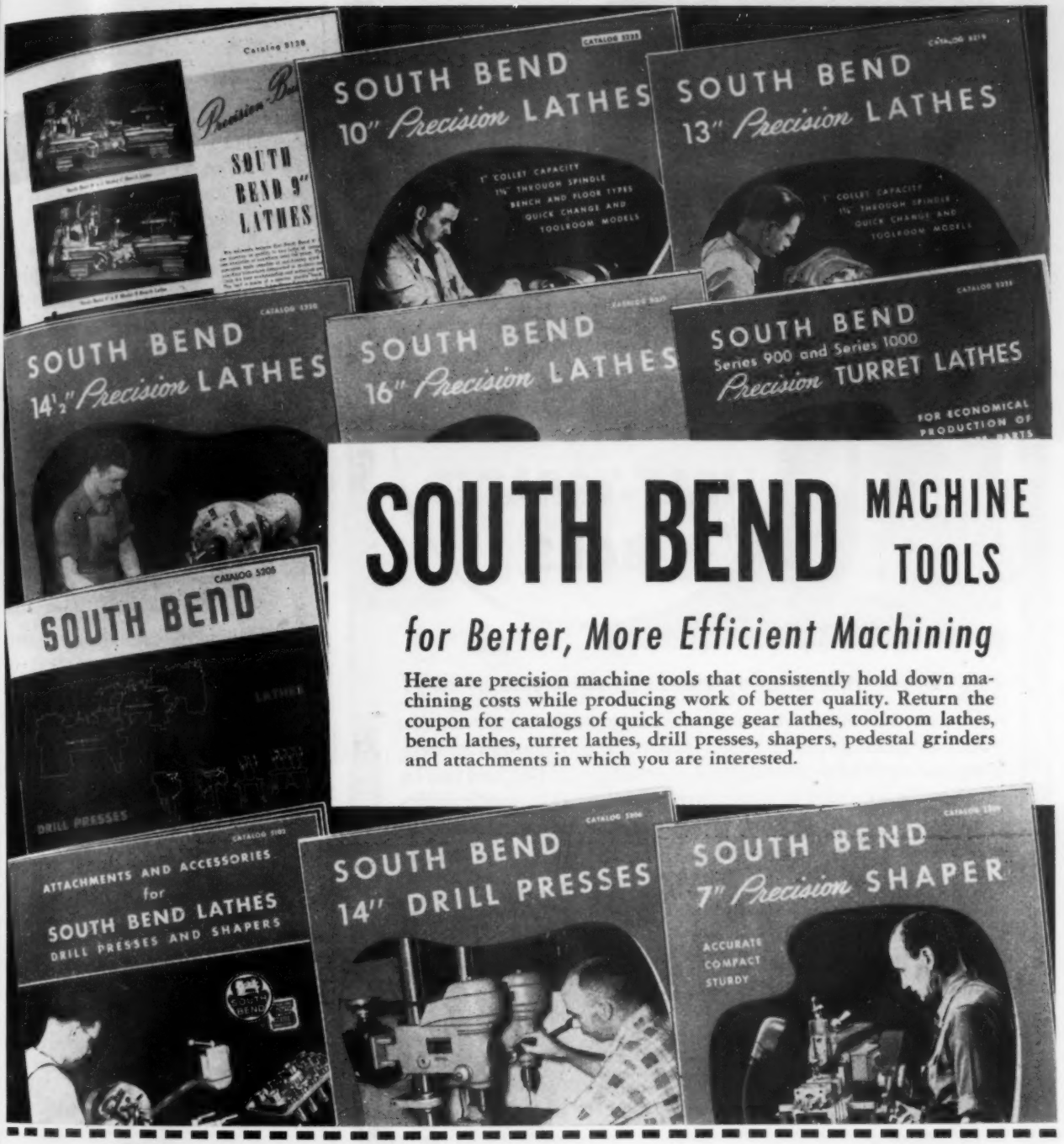
For problems involving low tonnage bulk materials handling and feeding a small electromagnetic vibratory feeder has a maximum feeding capacity of 2 tons per hr. Its electromagnetic design eliminates the use



of rotating, working parts such as gears, cams, belts, chains, etc. All action is confined to inexpensive, easily replaceable leaf springs. Regulation of the material flow out of the feeder is governed by a rheostat in the feeder's controller. *Syntron Co.*

For more data circle No. 35 on postcard, p. 87.

Turn to Page 110


SOUTH BEND 9" LATHES
SOUTH BEND 10" Precision LATHES
SOUTH BEND 13" Precision LATHES
SOUTH BEND 14½" Precision LATHES
SOUTH BEND 16" Precision LATHES
SOUTH BEND Series 900 and Series 1000 Precision TURRET LATHES
FOR ECONOMICAL PRODUCTION OF
SOUTH BEND
DRILL PRESSES
ATTACHMENTS AND ACCESSORIES for SOUTH BEND LATHES DRILL PRESSES AND SHAPERS
SOUTH BEND 14" DRILL PRESSES
SOUTH BEND 7" Precision SHAPER
ACCURATE
COMPACT
STURDY

SOUTH BEND MACHINE TOOLS

for Better, More Efficient Machining

Here are precision machine tools that consistently hold down machining costs while producing work of better quality. Return the coupon for catalogs of quick change gear lathes, toolroom lathes, bench lathes, turret lathes, drill presses, shapers, pedestal grinders and attachments in which you are interested.

$_____ enclosed for handbooks checked

- ☐ How to Run a Lathe — 50¢
- ☐ How to Run a Shaper — 25¢
- ☐ How to Run a Drill Press — 25¢

SEND CATALOGS CHECKED:

- ☐ 9" Lathes
- ☐ Light Ten Lathes
- ☐ 10" Lathes
- ☐ 13" Lathes
- ☐ 14½" Lathes
- ☐ 16" Lathes
- ☐ 16-24" Lathes
- ☐ Series 900 and 1000 (½" and 1" collet) Turret Lathes
- ☐ No. 2-H (1" collet) Turret Lathes
- ☐ Complete Lathe Catalog
- ☐ Attachments and Accessories — Lathes, Drill Presses, Shapers
- ☐ 14" Drill Presses
- ☐ 7" Bench Shapers
- ☐ Pedestal Grinders
- ☐ Training Aids and Films

Name _____ Company _____

Street _____

City & Zone _____ State _____

Building Better Tools Since 1906 • SOUTH BEND LATHE • South Bend 22, Indiana

OVER ONE HUNDRED YEARS OF CONTINUOUS SERVICE. ROUNDS, SQUARES, FLATS, HEXAGONS, OCTAGONS

BILLETS AND FORGINGS FOR PRODUCTION, TOOL ROOM AND MAINTENANCE REQUIREMENTS

HY-TEN

"B" No. 3X HEAT-TREATED BARS

This higher-priced alloy steel can save you money!

"B" No. 3X heat-treated bars offer many production economies, even though machined at about ¾ths the speed of annealed bars. They are supplied to your desired physical properties, and can be machined more easily than standard heat-treated bars with equivalent properties. The expense of scaling, distortion, straightening, and often grinding, are eliminated — as well as the cost of extra handling and heat treating of finished parts!

Although the cost is a little more than for ordinary annealed stock, a trial order will convince you of the true economy of HY-TEN "B" No. 3X heat-treated bars! Just call your nearest WL representative.

Write today for your FREE COPY of the Wheelock, Lovejoy Data Book, indicating your title and company identification. It contains complete technical information on grades, applications, physical properties, tests, heat treating, etc.

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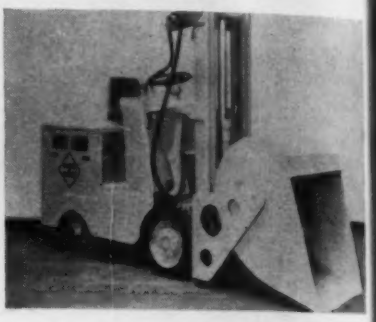
—New Equipment—

Continued

Scoop attachment

Handling bulk materials such as fine coal and sulfur, can be done with a new scoop attachment designed for use on any of Elwell-Parker's hydraulic-powered fork trucks. It is not intended for loads where the lumps are large. Its hydraulic power is received from the same system which operates the lift and tilt on

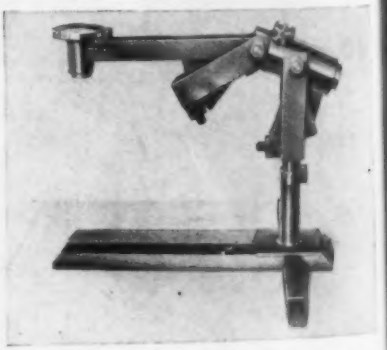


the vehicle. Overall width is 37⅜ in.; cubic content, 25 cu ft; capacity 3200 lb. Features are its anti-friction bearings supporting the trunnions of the scoop, a double-acting hydraulic cylinder which moves the unit from loading to carrying position, and a replaceable wear strip on the lip of the scoops. *Elwell-Parker Electric Co.*

For more data circle No. 36 on postcard, p. 87.

Balanced positioner

Finger-tip positioning of any size workpiece from 10 lb to 1 ton is possible with a new 1-ton rated universal balanced positioner.



Bearings are Timken taper roller bearings and all components are rugged and precise. Main uses will be found in welding where down-hand positions result in much faster weld deposit and higher weld quality. *Aronson Machine Co.*

For more data circle No. 37 on postcard, p. 87.

Turn to Page 112

"144,000 of our employees are enrolled in the Payroll Savings Plan"

C. F. HOOD
President, United States Steel Corporation

"The response of our employees to the Payroll Savings Plan for U. S. Savings Bonds is dramatic evidence of their conviction that Freedom is Everybody's Job. We are proud of their outstanding record in saving systematically in "E" Bonds, in thus adding to their financial independence as they give effective support to the nation."

Mr. Hood and his associates may well be proud of the Steel Corporation's Payroll Savings figures:

- 144,000 men and women of U. S. Steel are enrolled in the Payroll Savings Plan—an over-all employee participation of 52%—excellent for a company as large as U. S. Steel.
- the average monthly investment of a U. S. Steel Payroll Saver is $20.79.
- every month, these 144,000 employees invest $2,993,760 in personal security—and America's economic stability.
- in some U. S. Steel plants and subsidiaries employee participation runs as high as 80%.

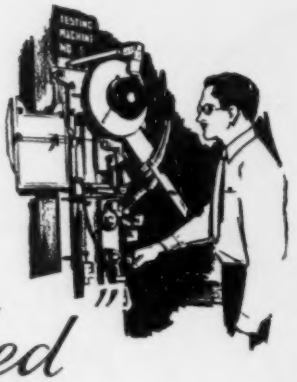
Nearly eight million men and women, in forty-five thousand companies, large and small, are building personal security and contributing to national economic stability by their $160,000,000 monthly investment in U. S. Savings Bonds. These Payroll Savers, with their $25 and $50 Bonds, are major shareholders in a huge reservoir of future purchasing power—the $35.5 billion, *cash value* of Series E Bonds outstanding.

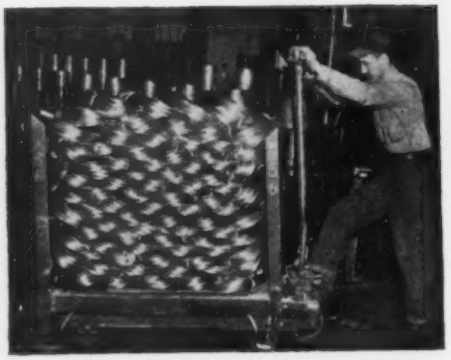
What is the employee participation in *your* Payroll Savings Plan? The average monthly deduction? How many employees have been *added* to your Payroll Savings Plan in the last year? Call for the figures and study them. Then, phone, wire or write to Savings Bond Division, U. S. Treasury Department, Washington Building, Washington, D. C. Your State Director will be glad to show you how easy it is to raise employee participation in your plan to 60%, 70%, or even better.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

the **Iron Age**

"Laboratory Controlled"

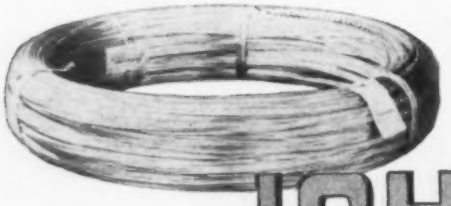




Specialty Wires by JOHNSON

Johnson gives you absolute uniformity of prescribed physical and metallurgical properties. When you specify "Johnson" you get wire drawn on special equipment by men with special skills.

"Johnson Sets the Standard of the Industry"



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STEEL and WIRE COMPANY, INC.
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A SUBSIDIARY OF PITTSBURGH STEEL COMPANY

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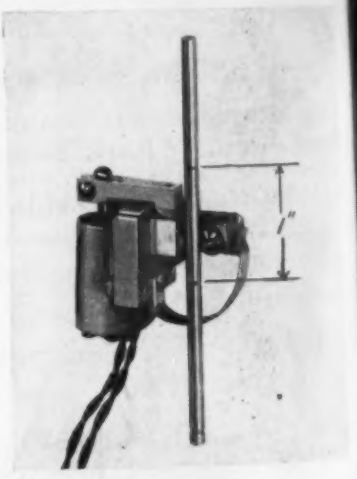
Face shields

AO Series F200 and F300 face shields have been redesigned to give 5/8 in. more clearance between the wearer's face and the window. This affords greater comfort to workers who must wear glasses or corrective goggles under face shields. Floating snap fasteners permit the window to expand under extreme heat without the possibility of cracking or curling. Different windows and sizes are replaceable and interchangeable on the same headgear; clear or green acetate in 3 sizes and 3 thicknesses. *American Optical Co.*

For more data circle No. 38 on postcard, p. 87.

Extensometer

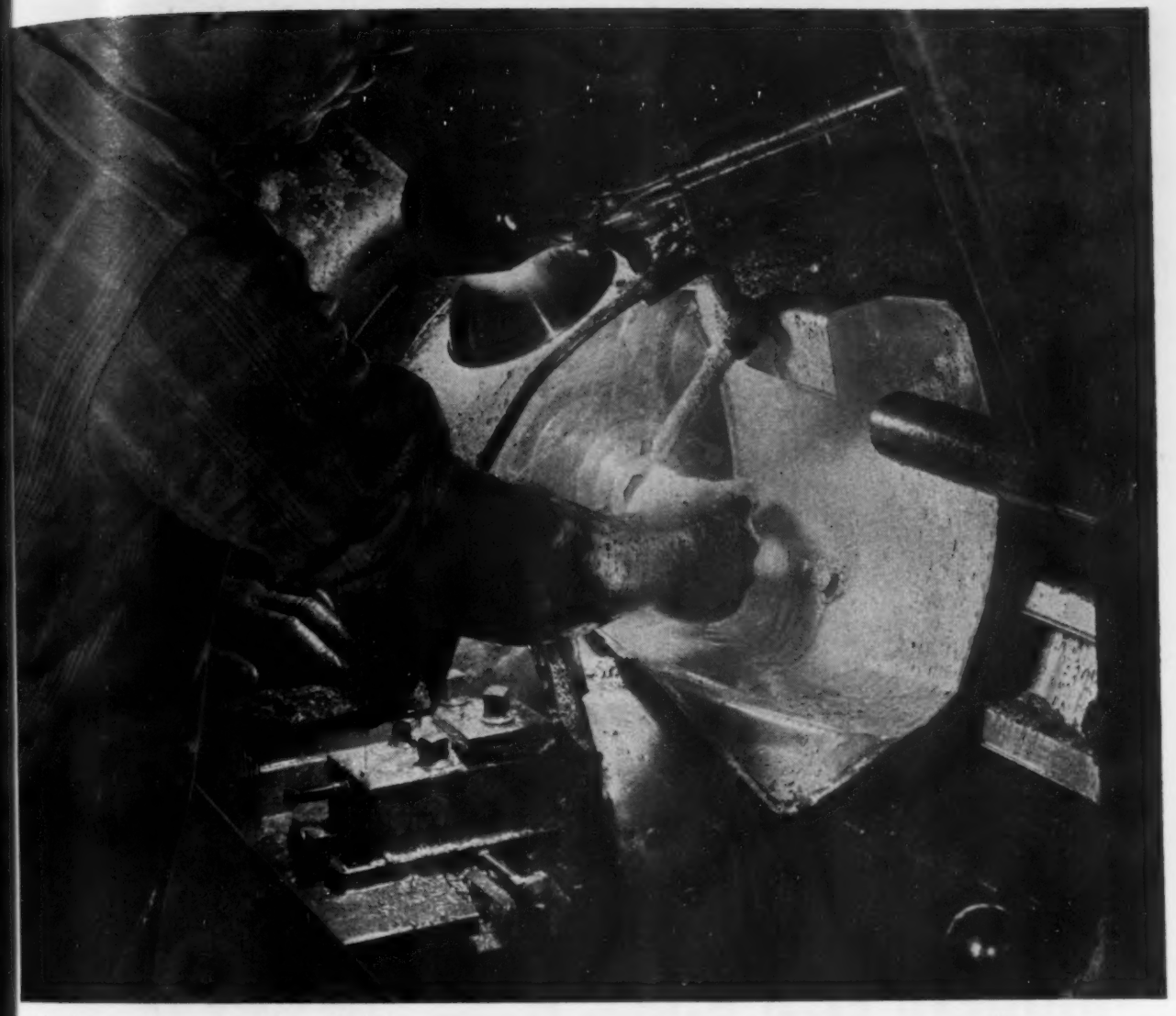
New high magnification extensometer for gage lengths of 4/10 or 1/2 in. is available for 1/16 to 3/8 in. diam specimens. The 4/10 gage length model is recommended for standard 0.113 in. diam specimens. Extremely lightweight, the Type S-9 electric extensometer is used with the Olsen Model 51 electronic



recorder for detecting strain under both elastic and plastic tension tests. Easily snapped on to the specimen, this small sensitive instrument is provided with magnifications of 50, 100 and 200, instantly available by the turn of a switch. Overall dimensions of the S-9 are approximately 3/4 x 7/8 x 1 in. *Tinius Olsen Testing Machine Co.*

For more data circle No. 39 on postcard, p. 87.

Turn to Page 114



Workers no longer breathe oil mist.

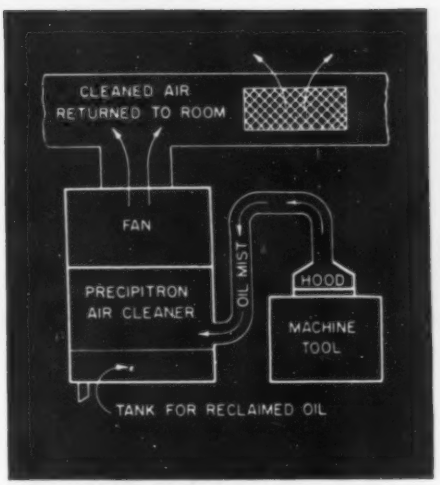
ELECTRONIC TRAP

SNARES OIL MIST, UPS EFFICIENCY

Whirling chucking machines throw up clouds of vaporized oil coolant. At Scovill Manufacturing Co., this formerly restricted visibility, reduced operating efficiency, caused hazardous working conditions. Oil mist on wiring threatened fire, too.

But Westinghouse PRECIPITRON® Oil Mist Control wiped out this problem. This unique device snares the oil out of the air by electronic attraction; allows only pure air to pass. It provides these benefits: 1) salvaged coolant oil; 2) improved working conditions; 3) safety from slippery floors and tools.

Westinghouse will *put air to work* to save you money, too. Our full line of air cleaning, air conditioning and air handling equipment solves many production problems. Call your local Westinghouse-Sturtevant office, or write Westinghouse Electric Corp., Sturtevant Division, Hyde Park, Boston 36, Massachusetts.



Collection hoods catch oil mist at its source. Quiet, efficient Westinghouse fan units draw coolant-laden air through PRECIPITRON air cleaners. PRECIPITRON traps smoke, fume and fog particles. It costs only pennies per week to operate, has no moving parts to wear out or replace.

WESTINGHOUSE
AIR HANDLING

YOU CAN BE SURE... IF IT'S Westinghouse

J-80330

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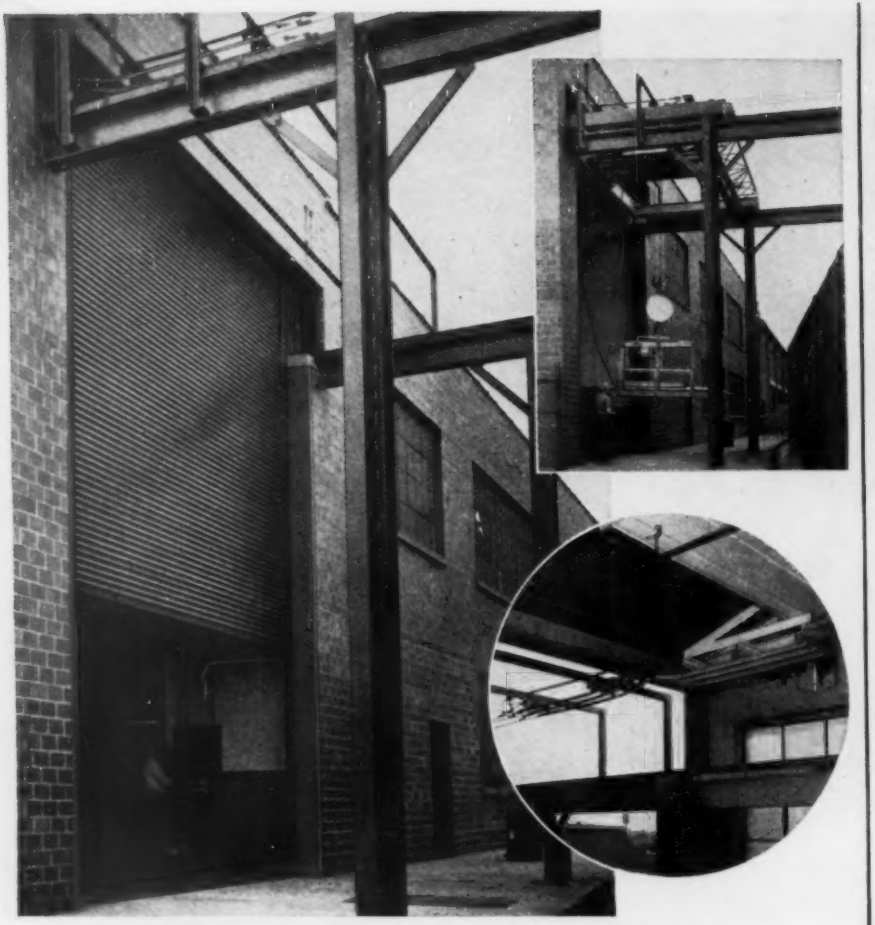


BIG CRANE OPENING

shows advantages *all* doorways gain with

KINNEAR Steel Rolling Doors

It takes more than just "a lot of door" to fill the bill in this big crane opening at the factory and general office building of White Castle System, Inc., Columbus, Ohio.

The door must operate efficiently, close effectively, cut space loss to the bone, and stand up under years of frequent use. Kinnear Steel Rolling Doors score high on all these points.

At the touch of a push button, a Kinnear Motor Operator raises the 450-square-foot door into remarkably small space above the opening. Movable steel jamb sections at the top of the opening pivot upward automatically, clearing trolley area above crane tracks. A special "bridging" arrangement permits a gap in the trolley lines supplying electric power to the crane.

Advantages Kinnear Steel Rolling Doors bring to all service openings are also realized in special situations like this—the protection, fire-safety and durability of all-steel construction . . . space-saving upward action . . . complete jamb-to-jamb, floor-to-lintel clearance of the opening . . . jamb-anchored security against wind or storm damage *whether opened, closed, or in action* . . . ideal for motor operation . . . neat appearance at all times, and many others!

Kinnear Steel Rolling Doors are built to fit any opening. *They've proved their extra value for more than half a century.* Write for full details today.

The KINNEAR Manufacturing Co.
Factories:
1760-80 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices And Agents In All Principal Cities

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

—New Equipment—

Continued

Emergency V-belt kit

Anyone can quickly and easily replace broken V-belts without dismantling machinery by using the new Zipon emergency V-belt kit. Each kit contains a carefully planned footage of detachable V link belting, a simplified tool for attaching, and a folder of instructions. With four kits of various size belting, all FHP and most multiple V-belts can be replaced. *Brammer Corp.*

For more data circle No. 40 on postcard, p. 67.

Curtain wall panels

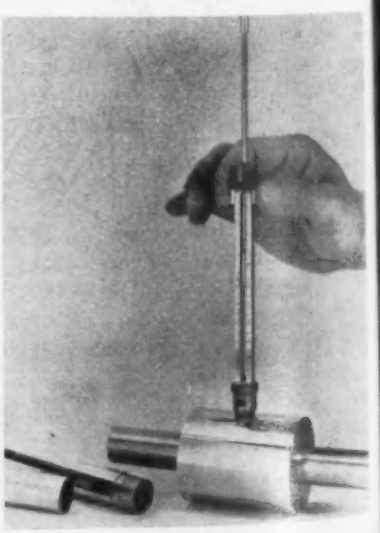
Light but strong curtain wall material is composed of an aluminum honeycomb core with a porcelain face and finished in a glossy color. It is ⅜ in. thick. The material features ease of handling, low-cost installation, requires no painting and can be cleaned with only soap and water *Seaporcel Metals, Inc.*

For more data circle No. 41 on postcard, p. 67.

Hardness tester

Pocket-size hardness testers that operate on the rebound principle combine low cost and simplicity of use with consistent accuracy of test results. Known as Sklerografs, the testers are specifically designed for on-the-spot testing by engineers, metallurgists, foremen and superintendents. They are provided with tubular nickel containers for ease of carrying on the job. *Kurt Orban Co., Inc.*

For more data circle No. 42 on postcard, p. 67.



The Iron Age

SALUTES

W. Summerfield Brunk

This former school teacher became a leading foundry industry statesman in just over 10 years.

"I JOINED the foundry industry in 1941. In 1947 an old-timer took me aside and said, 'Summer, you're a foundryman now.'" Summer Brunk won't admit the old-timer was right, but he does repeat his statement with a certain air of pride. The castings industry shares the old-timer's opinion, has recognized Summer's personality, ability and leadership.

Summer, besides his job as President of Headford Bros. & Hitchins Foundry Co., Waterloo, Iowa, is also president of National Foundry Assn.; member National Castings Council; member, American Foundrymen's Society. Recently re-elected for the fourth successive year as chairman, Iowa-Illinois Group, Gray Founders Society, he has also served 2 years as president of Cedar Valley Foundrymen's Assn.

Before entering the foundry business, Summer had a varied background in Iowa and the Philippine Islands as high school teacher and principal, athletic coach and writer on education and athletics. While in the Philippines, he also served as manager of a fiber shipping container company from 1934-40.

Forced by ill health to return to the States in 1940, he joined Headford Bros. after convalescence in 1941. Assistant to the president by 1943 and vice-president in '45, he was elected president in 1948.

Summer lives in Waterloo with his wife and 4-year-old son, who is chief model for his father's hobby of photography. As a result of his years in the Philippines, Summer is also an avid collector of oriental art and curios.

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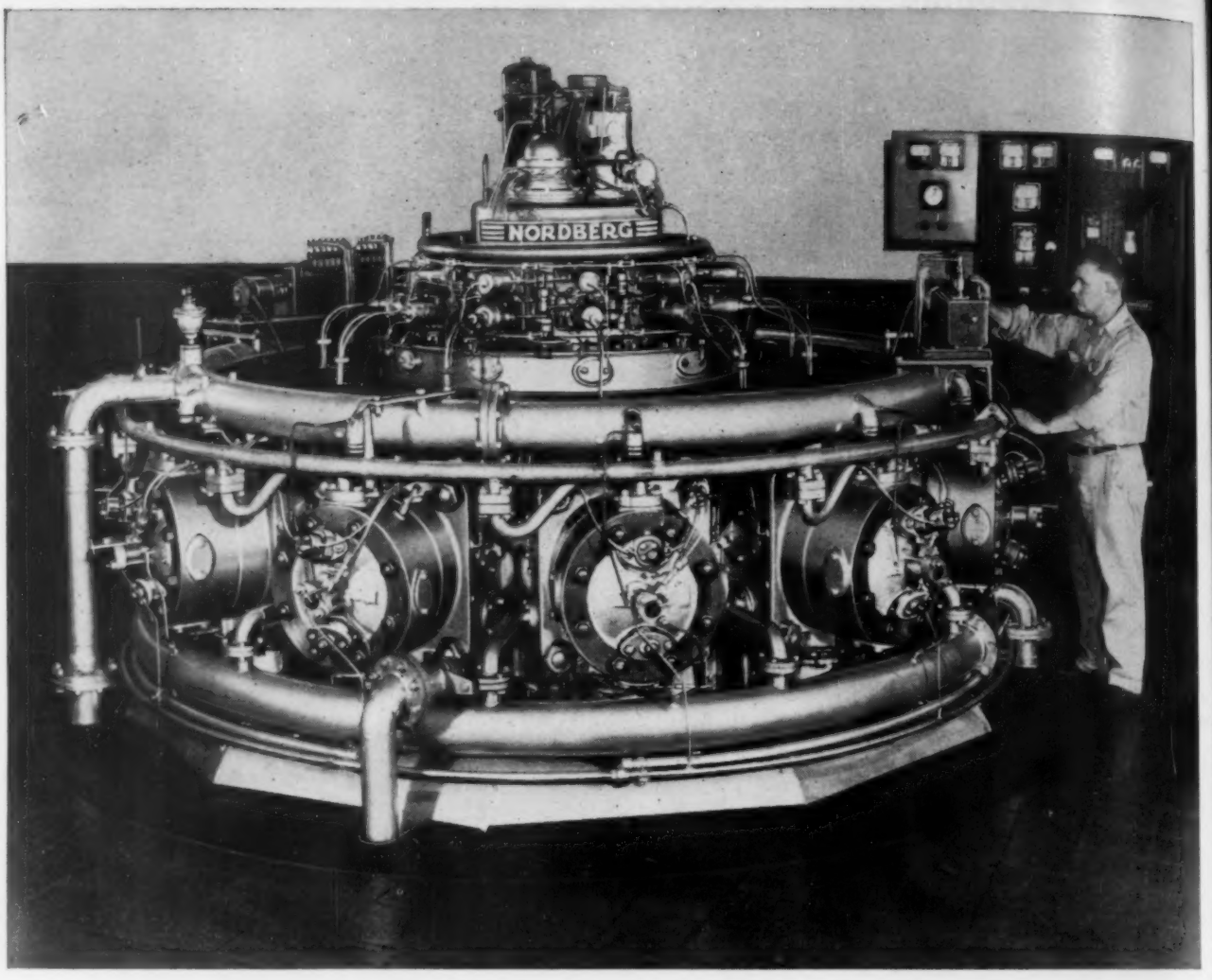
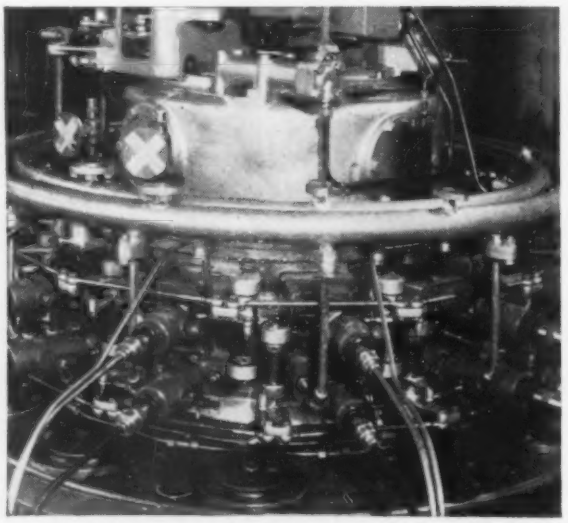


Here's Why The Nordberg Manufacturing Co. Uses *Summerill* Seamless Tubing



This close-up of the Nordberg two-cycle Radial Duafuel engine shows ½" O.D. Summerill Tubing being used for the fuel oil and gas lines. . . a .107" I.D. fuel oil pump line . . . and a .187 I.D. gas actuator pump line.

"For many years, we've used Summerill Cold Drawn Seamless Tubing in our Radial engine oil and/or gas fuel lines. It has been our experience that Summerill constantly maintains the high standard of quality required for our products."

This report from the Nordberg Manufacturing Co., Milwaukee, Wis., is typical of the results that hundreds of other Summerill customers have achieved. And we're ready to prove that you'll benefit in the same way, thanks to the exacting quality-control we exert at every step of production, from selection of prime raw materials to shipment of the finished product to you. ● Why not get together with us on your tubing problems? We'll gladly work with you to improve your product, reduce costs and eliminate fabrication difficulties. *Call or write today!* Summerill Tubing Co. Div., Columbia Steel & Shafting Co., Pittsburgh 30, Pennsylvania.

Summerill

The Iron Age

INTRODUCES

J. C. Merwin, elected to chairman of the board, CHAIN BELT CO., Milwaukee.

Roger E. Vaughan, executive vice-president, appointed to a membership on the board of directors, CONSOLIDATED MACHINE TOOL CORP., Rochester, N. Y.

Bruce R. Carlson, appointed statistical assistant to the president, SPRAGUE ELECTRIC CO., N. Adams, Mass.

Dr. Clyde McKinley, appointed director of research, AIR PRODUCTS, INC., Allentown.

J. E. Allison, named assistant director, Labor Relations, JONES & LAUGHLIN STEEL CO., Pittsburgh.

F. Milford Taylor, elected to the board of directors, BOHN ALUMINUM & BRASS CORP.

Maxwell M. Wachowiak, appointed assistant to the president, THE WALL WIRE PRODUCTS CO., Plymouth, Mich.

Shardlow E. Crawford, appointed assistant to the controller, VANADIUM CORP. OF AMERICA.

Joseph L. Buckler, becomes assistant comptroller, UNITED STATES STEEL HOMES, INC., housing subsidiary of United States Steel Corp.; and **John C. Bird,** becomes assistant secretary.

Theodore F. Eserkaln, appointed chief engineer, KEMPSMITH MACHINE CO., Milwaukee.

William J. Tell, promoted to staff engineer, Cadillac's Future Body and Sheet Metal Styling, Cadillac Motor Car Div., GENERAL MOTORS CORP.

Douglas M. Jones, appointed chief engineer, AXELSON MFG. CO., division of Pressed Steel Car Co., Inc.

Edward D. Fagan, appointed sales engineer for materials handling equipment, HEPPENSTALL CO., Pittsburgh.

William C. Vanbebber, appointed sales engineer, Los Angeles and surrounding area, BALDWIN-LIMA-HAMILTON CORP., Philadelphia.

Edward D. Heins, appointed chief engineer, Export Div., CHRYSLER CORP., Detroit.

Robert Anderson, appointed to newly created position of foundry engineer, HYSTER CO., Portland.

F. B. O'Mara, appointed manager, Metallurgical carbon sales, NATIONAL CARBON CO., a division of Union Carbide & Carbon Corp.

Alexander Alves, becomes head of American Sinterings, a division of AMERICAN TOOL WORKS OF HARTFORD, INC.

C. R. Heilig, named sales manager, Central District, BASIC REFRACTORIES, INC., **G. W. Edwards,** appointed assistant manager; **J. D. Hysong,** appointed sales supervisor, newlyformed Midwestern sales district; and **D. B. Baxter,** becomes manager of Eastern office.

Norman M. Sted, appointed manager of sales, Cleveland district, U. S. STEEL CORP.

H. R. Wilson, named manager, Rockford, Ill., branch office, ALLIS-CHALMERS MFG. CO.

G. W. Ballantine, appointed manager, Coated Abrasives Dept., ARMOUR & CO., Alliance Div., Chicago.

L. B. McKNIGHT, elected president and chief executive officer, Chain Belt Co., Milwaukee.

HARRY R. BLACK, elected vice-president and treasurer, United States Steel Homes, Inc., housing subsidiary of United States Steel Corp.

RALPH D. PARKER, elected president, Canadian Nickel Co., Ltd., Copper Cliff, Ont., subsidiary of International Nickel Co., Inc.

Personnel

James W. Frasor, promoted to manager of sales, Industrial Products Div., NORTHWESTERN STEEL & WIRE CO., Sterling, Ill. He succeeds W. W. Alexander, who has resigned.

Mark L. Shepard, appointed manager, Richmond Div., GAR WOOD INDUSTRIES, INC., Richmond, Calif.

George A. Parker, appointed manager, explosives sales office, Pittsburgh, HERCULES POWER CO., Wilmington, Dela.; and **Thomas E. Brown,** becomes manager, Hazelton, Pa.

Clayton L. Heintz, appointed manager of distribution, THE COOPER ALLOY FOUNDRY CO., Hillside, N. J.

Linton J. Koller, appointed district manager, Garwood Sales District, NATIONAL GYPSUM CO.

Kenneth McCrea, becomes district manager, eastern Canada, ROCKWELL MFG. CO., Pittsburgh.

Edmund H. Gagnon, becomes office manager, Cleveland; NORTON CO., and **Everett M. Story,** becomes office manager, Hartford, Conn., effective Sept. 1.

Frank D. Goll, and **Milton G. Roth,** named assistant managers of sheet and plant sales, ALUMINUM CO. OF AMERICA, Pittsburgh.

Richard H. Berge, promoted to plant manager, EATON MFG. CO., Pump Div.; and **Charles D. Barnes,** appointed plant purchasing agent, Marion Forge Div., Marion, Ohio.

Stanley H. Wilson, appointed aluminum sales manager, Aluminum General Sales Dept., REVERE COPPER & BRASS INC., New York.

H. M. McDaniel, becomes supervisor of the sale of plastic pipe and tubing, Pipe Div., REPUBLIC STEEI CORP., Cleveland.

L. S. CAWRSE, elected president, Consolidated Iron-Steel Mfg. Co.

I. M. J. KAPLAN, appointed vice-president, Copperweld Steel Co., Pittsburgh.

CARL R. ROLF, appointed vice-president, in charge of sales, Pioneer Engineering Works, Minneapolis.

FRANK IAPALUCCI, appointed welding engineer, Baldwin-Lima-Hamilton Corp., Philadelphia.

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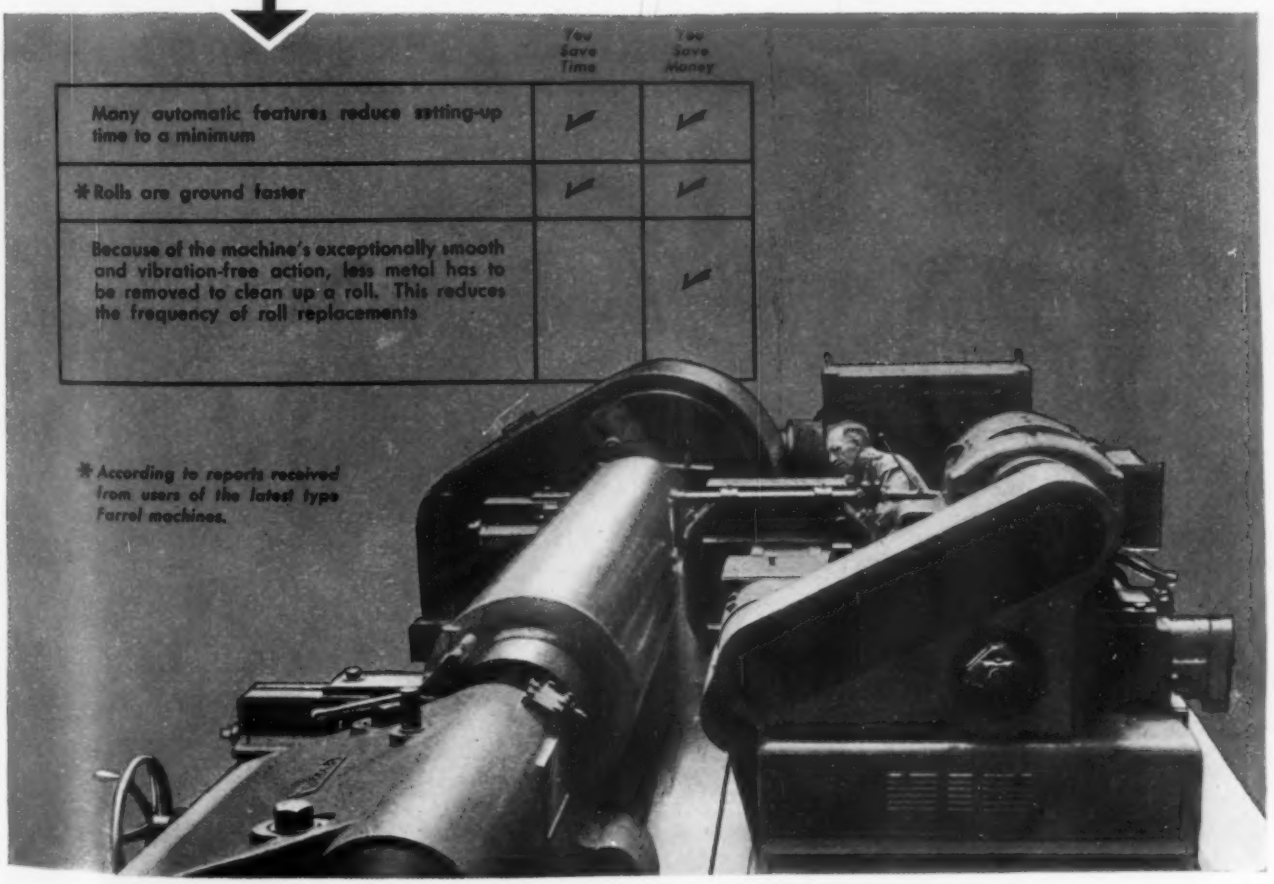

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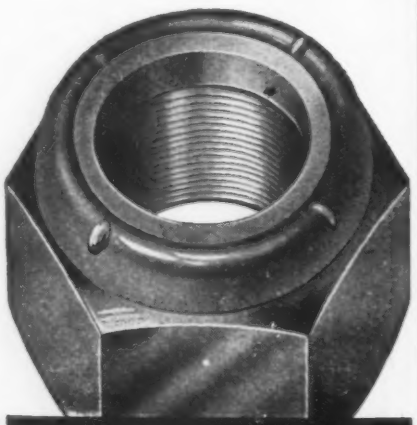


GREER Stop Nuts

Personnel
Continued

A. C. Olbeter, appointed superintendent of the Hammer Shop, Park Works, CRUCIBLE STEEL CO. OF AMERICA, Pittsburgh.

Joseph Caldwell, Jr., appointed assistant general sales manager, MILLS INDUSTRIES, INC., Chicago.

Raymond J. Zale, promoted to assistant to the sales manager, Steel Div., FIRTH STERLING INC.

C. D. Hoover, appointed regional sales manager, BREUER ELECTRIC MFG. CO., Chicago.

Paul Kluthe, joins the Mid-Continent district sales offices, KAISER STEEL CORP., Tulsa, headquarters.

Wallace M. Kunkel and **Ross C. Stevens** have joined DEWALT INC., Lancaster, Pa., subsidiary of American Machine & Foundry Co.

Bernard M. Kewin, promoted to advertising manager, AUTOMATIC TRANSPORTATION CO., Chicago.

Kenneth E. Knotts, made district sales representative, Metropolitan New York and northern New Jersey, C. A. NORGREN CO.

Ralph Eads, Jr., appointed representative in Texas and Louisiana, ASKANIA REGULATOR CO.

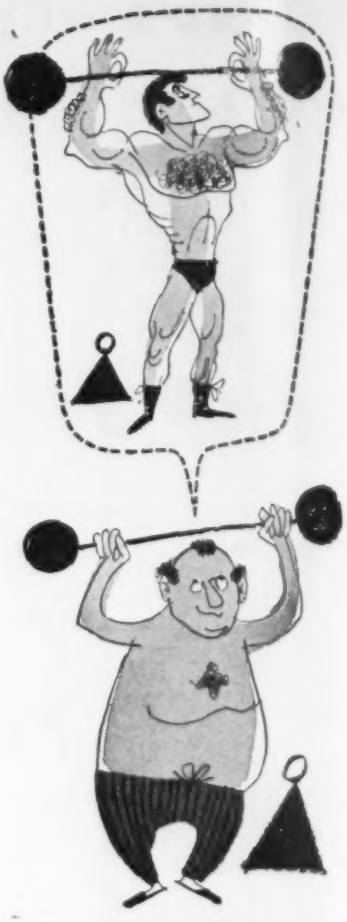
J. Whitney Cooper, named a representative in Upper New York State, PROTECTIVE COATINGS, INC., Cleveland.

James O'Rourke, appointed representative, Florida, ALUMINUM INDUSTRIES, INC., Cincinnati.

OBITUARIES

Charles J. Geilfuss, 53, assistant general manager, General Asbestos & Rubber Div., Raybestos-Manhattan, Inc., N. Charleston, S. C., at his summer home on Sullivans Island.

John Howe Hall, 72, steel foundry consultant and member of the advisory staff of Foundry, recently at Tarrytown, N. Y.



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TOOLING INNOVATIONS Speed Specialized Parts Production

By D. A. Hubbard
Research and Development Engineer
Vard, Inc.
North Hollywood, Calif.

◆ Many modifications and developments in machine tools have been achieved by Vard, Inc., for its own special needs . . . In the past few years the company has developed four different machines.

◆ On an hourglass worm grinder a close fit without lapping is achieved between the gear and the worm . . . The gear hob is ground on the same setup as the worm . . . The firm has also made innovations in threading, milling and boring machines.

◆ DESIGNING and manufacturing aircraft components of a highly specialized nature have resulted in many modifications and new developments in machine tools and other fabricating machinery at the plant of Vard, Inc., North Hollywood, Calif. This equipment must be exacting and capable of turning out work at a quality and speed conducive to economical production. In the past few years Vard has developed four such machines and is presently duplicating these prototypes for use in its own shops.

Gears are a major part of the plant's output. One of the most difficult problems in this regard entailed the grinding of hourglass worms, as shown in Fig. 1. No standard equipment was available in the shop to do the work so Vard developed the machine shown in Fig. 2. Using the base of a Jones & Lamson thread grinder, machinery was added to shape the work, including the hourglass form which controls contour and backlash with high accuracy. The 5¾ hp, gear-driven machine is automatically cycled but may be manually operated.

In grinding the worm, maximum accuracy and a close fit without lapping between the gear and the worm are achieved by grinding the gear hob on the same setup as the worm, Fig. 3. Interchangeable parts are thus made rather than the standard, lapped, matched sets produced by other methods. The machine will grind worms and hobs for gear sets of up to 8-in. center distance and from one to four threads. By carburizing the roughed blank a surface hardness of over 60 Rc with a depth of 0.015 to 0.020 in. is maintained on the finished worm. The ground finish is 16 microinches or better. Worms ground are used mostly for aircraft gear reduction assemblies but similar assemblies are adaptable to automotive and other commercial products.

Need for a 10 hp horizontal milling machine, plus costs the management felt were prohibitive for standard designs, were responsible for development of the Vard horizontal milling machine, see Fig. 4. This equipment is especially adaptable for slab milling and was built for one third the price quoted for a comparable stock design. It is used mostly for milling parts for

Standard machines and components provide a starting point . . . Then Vard builds in the features it needs . . . Micro-switches and other aids to automatic control help boost machine output . . .

airplane ball screw landing gear actuators but is also suitable for many other milling operations.

This mill is a semi-heavy duty unit, rigidly constructed for rapid stock removal and high production rates. It is of sturdy bed-type construction, hydraulically actuated by a combination hydraulic-pneumatic system in which no hydraulic pump is used. All adjustments for positioning work in relation to the cutters are in the spindle.

One of the main features built into the machine is a high reservoir-type pan which is integral with the table movement. This prevents the coolant from splashing excessively, catches chips and keeps the unit clean and workable. The machine also features rapid traverse which goes into automatic feed control governed by a preset cam.

Completely automatic

Compactness of the mill makes it particularly desirable for shops where floor space is at a minimum. It is driven by a 10 hp geared electric motor. Varying spindle speeds for steel or aluminum and magnesium are obtained by switching the pulleys on the belt drive.

In the Vard thread grinding machine, Fig. 5, a Jones & Lamson standard model again was used. Additions were made, however, to make a machine capable of producing a variety of threads in lengths up to 26 ft in 5-in. diam stock. Completely automatic, it is driven by two electric motors, one for driving the work and the other the grinding wheel.

This machine has proven a great time saver and produces finishes far surpassing the same work done on ordinary milling operations. Average quantity output permits production of seven, 48½ by 1¼-in. diam 4130 steel pieces per 8-hr shift.

Radius ball threads are dressed on the machine with an automatic dresser attachment and 60 deg threads are readily ground. It also grinds Acme threads or any conventional thread form. High tolerances are maintained at all times. Three of these thread grinding machines are now in use in the Vard plant, and two more are under construction.

Parts ground on these machines are used in Vard ball screw assemblies for aircraft actuators. Tolerances are extremely tight and each of the parts must be tested under rigid conditions.

To produce aircraft component parts with closely-held bores, the company developed its own automatic boring machine. A push button operation controls the entire cycle of the machine. Micro-switches set the travel limits of rapid traverse and normal feed. The coolant control valves are operated automatically in connection with the spindle cutting cycle. Two basic methods of horizontally actuating the spindles are used: (1) A completely hydraulic system with electric motor-driven pumps; (2) An air-hydraulic system using 100 lb air pressure applied to booster cylinders.

Rapid traverse feed to and from the work re-

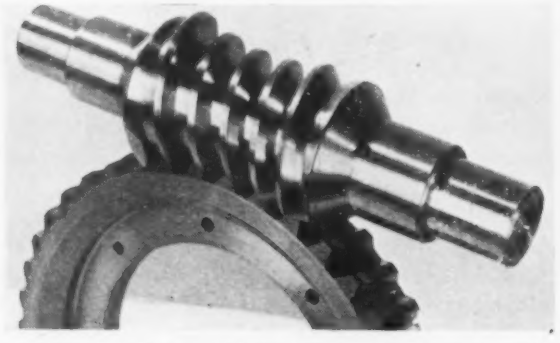

FIG. 1—Finish obtained on hardened and ground hourglass worm is 16 microinches. Load is spread over five gear teeth.

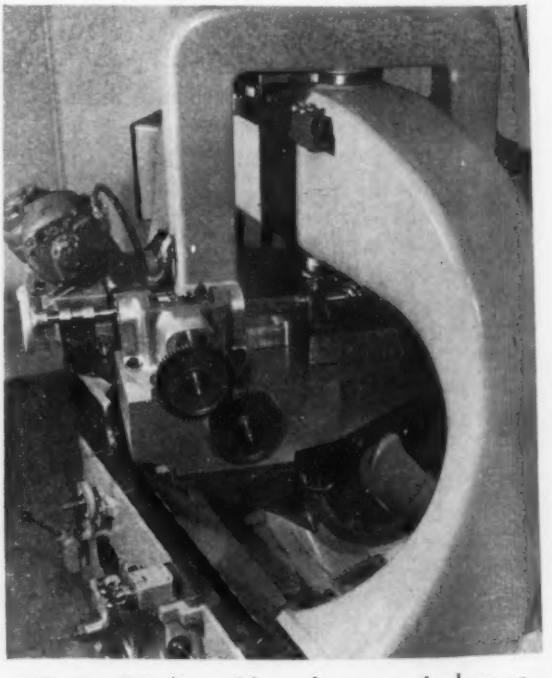

FIG. 2—Grinding of hourglass worm is done on this machine. Arch which pivots the work was added to base of J & L grinder.

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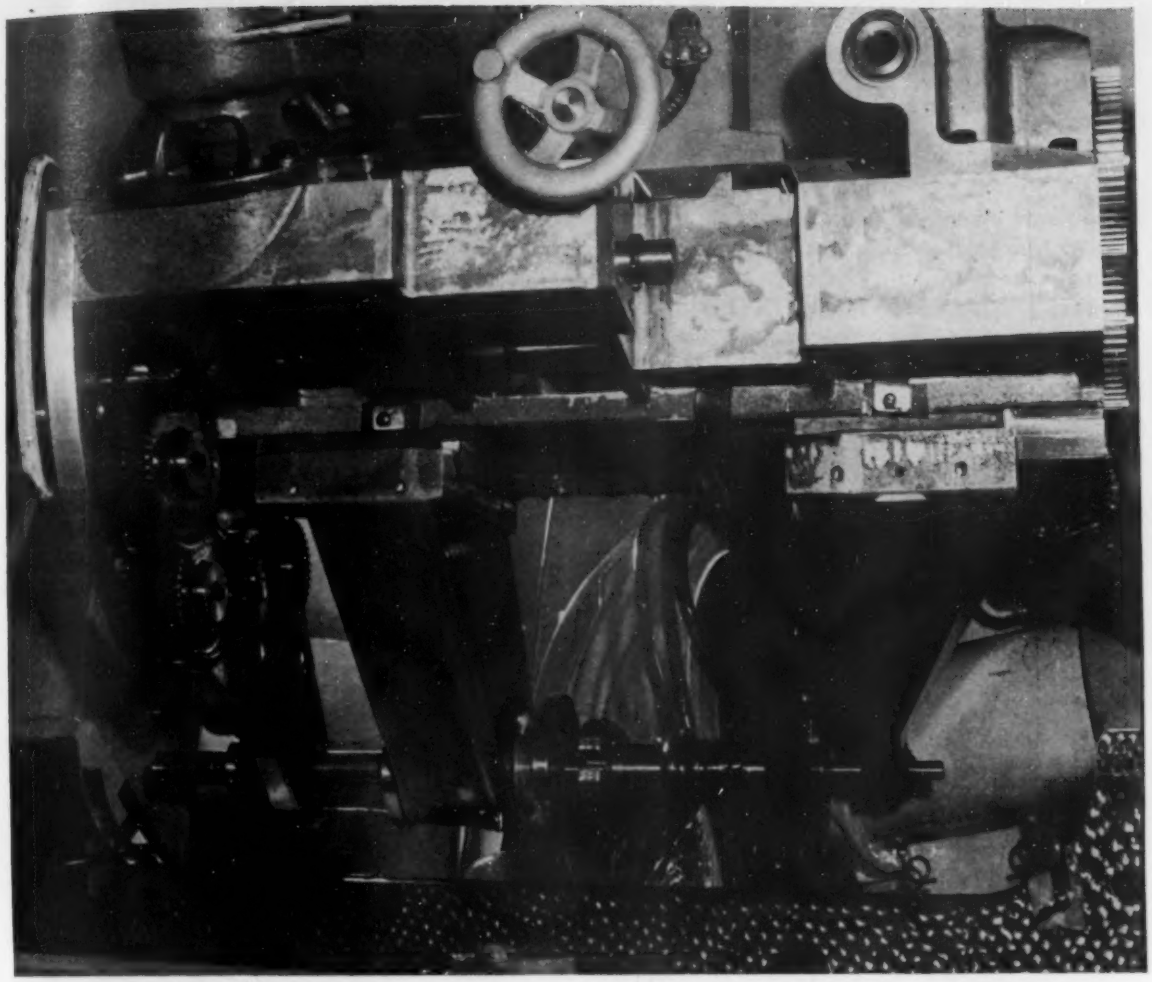

FIG. 3—Worm and gear hob are ground on the same setup. This machine makes possible interchangeability without lapping. Worms, hobs for gear sets to 8 in. center distance are ground.

duces the time consumed per cycle. The dwelling time at the tend of each cut may be varied and allows the tool to cut clear and leave no step or shoulder before backing out of the bore.

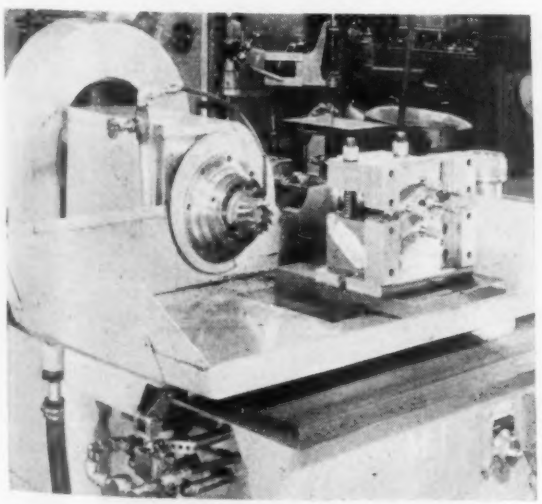

FIG. 4—Simplicity and rigidity are key advantages of this 10-hp milling machine. Reservoir-type pan keeps down splashing.

At the start of the cycle the spindle moves into the work in rapid traverse and then shifts to the feed speed just before it starts to cut. The coolant flows from the spindle nose throughout the entire pass. The tool dwells at the end of the pass until it cuts clear and then backs out in rapid traverse as the coolant shuts off. Because the operator has only to load the part, lower the protective hood, and push the start button, he may run work on two or three spindles simultaneously.

Air fittings are mounted on the spindle housing for air fixtures on jobs where quick clamping is an advantage. On rapid operations an operator can load only one spindle at a time. Vard Inc. had run a component of its drafting machine on an engine lathe for years. The normal production rate was 100 pieces per shift. Using one spindle, the automatic boring machine does 100 pieces per hour.

Machine rigidity and the stability of the cast iron tables make set-up operations fairly simple. The cast iron tables are slotted at right angles giving positive locating points for boring heads and fixtures. An additional advantage of

Rebuilding and redesign have made it possible to incorporate several operations in one machine . . . Cold coolant holds tolerances.

the slotted tables is that heads may be set at right angles to each other or may be placed in line to bore on opposite ends of a housing simultaneously with line-bore accuracy.

Simple cams which operate the limit switches are easily adjusted for setting the limits of the rapid traverse and feed. The speed of the feed is controlled by the turning of a single valve. This comparative ease in a setup makes short runs of parts practical as well as longer production runs.

These boring machines can take multiple cuts on a single cycle of the spindle. On an aircraft gear box housing one spindle machine faces, chamfers and bores in one pass. While this is being done, the other spindles are finish boring or roughing other bores. These operations which would require four or five lathes are performed simultaneously by one operator. On a magnesium casting three concentric bores are bored on one pass assuring close concentricity. The possibilities for multiple cuts are numerous: facing, chamfering, boring, turning of OD's of trunnions.

The abundant flow of coolant through the nose of the spindle gives uniform temperature control and floods chips away from the work. Tolerances on some aircraft bearing bores have to be held within 0.0005 in. on a diameter of two to three inches. The Vard machines consistently repeat within 0.0002 to 0.0003 in. tolerance even in production runs. By refrigeration of the coolant the tolerances can be held even closer.

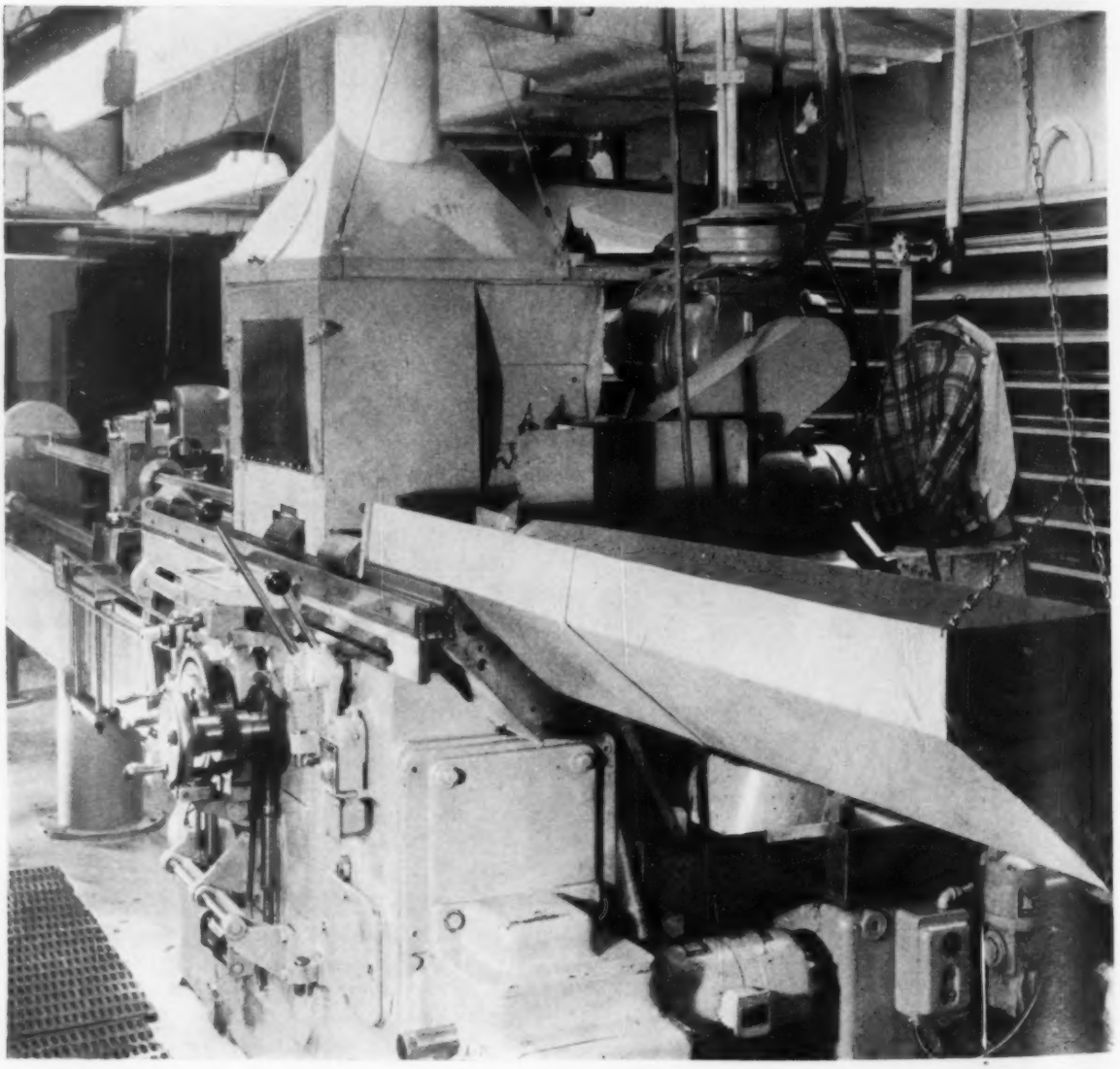

FIG. 5—Screws up to 22 ft in length may be ground on a Vard-designed extension to Jones & Lamson thread grinder. The unit, completely automatic, has proved an outstanding time saver.

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Selection under control—

NEW TESTS Prove Materials for Nuclear Power Plants

By Robert F. Koenig
Metallurgy Section
Knolls Atomic Power Laboratory
General Electric Co.
Schenectady

♦ Engineers have devised new and more critical methods to test materials for the unique service requirements and extreme reliability required in nuclear power plants . . . A combination of exceptional mechanical properties and good nuclear characteristics is a must.

♦ Corrosion testing in liquid metals is done in progressive stages —static, dynamic, then under conditions to simulate actual service . . . Some tests must be performed in nuclear reactors, particle accelerators or atomic piles . . . Satisfactory metallurgical progress has been a big aid to nuclear power plant designers.

♦ DESIGNERS of nuclear power plants have had some tough problems in selecting materials with suitable nuclear characteristics. First, materials must have good mechanical properties. But, in addition, they must be stable under irradiation, resist attack by coolants and withstand large temperature differentials. These are only a few of the problems for which metallurgical engineers have devised test methods to aid the reactor designer.

Corrosion testing, especially in liquid metals, has probably received the most attention. Procedures for evaluating the behavior of materials in potential reactor coolants have become fairly well standardized at AEC sites. At KAPL (Knolls Atomic Power Laboratory) most testing was done in sodium.

One approach to the problem has been to first eliminate those materials which react with or are attacked by sodium. Static corrosion testing has been satisfactory for screening materials. With the more promising alloys, specimens stressed by bending in special fixtures are often included in the static tests to determine if the material is susceptible to stress corrosion. Table I lists the generalized results of static corrosion tests of most common materials in a number of liquid metals. Noncorrosiveness of sodium to most structural materials, compared to lithium or gallium, is apparent.

After a material shows good resistance to attack in static and dynamic tests, the effect of stress is investigated further by long-time, stress-rupture tests which also yield essential information on mechanical properties. Testing apparatus is shown in Fig. 1. If the stress-rupture life in sodium is equal to that in air or in an inert atmosphere, and there is no metallographic indication of intergranular attack, the material is considered fully resistant to stress corrosion.

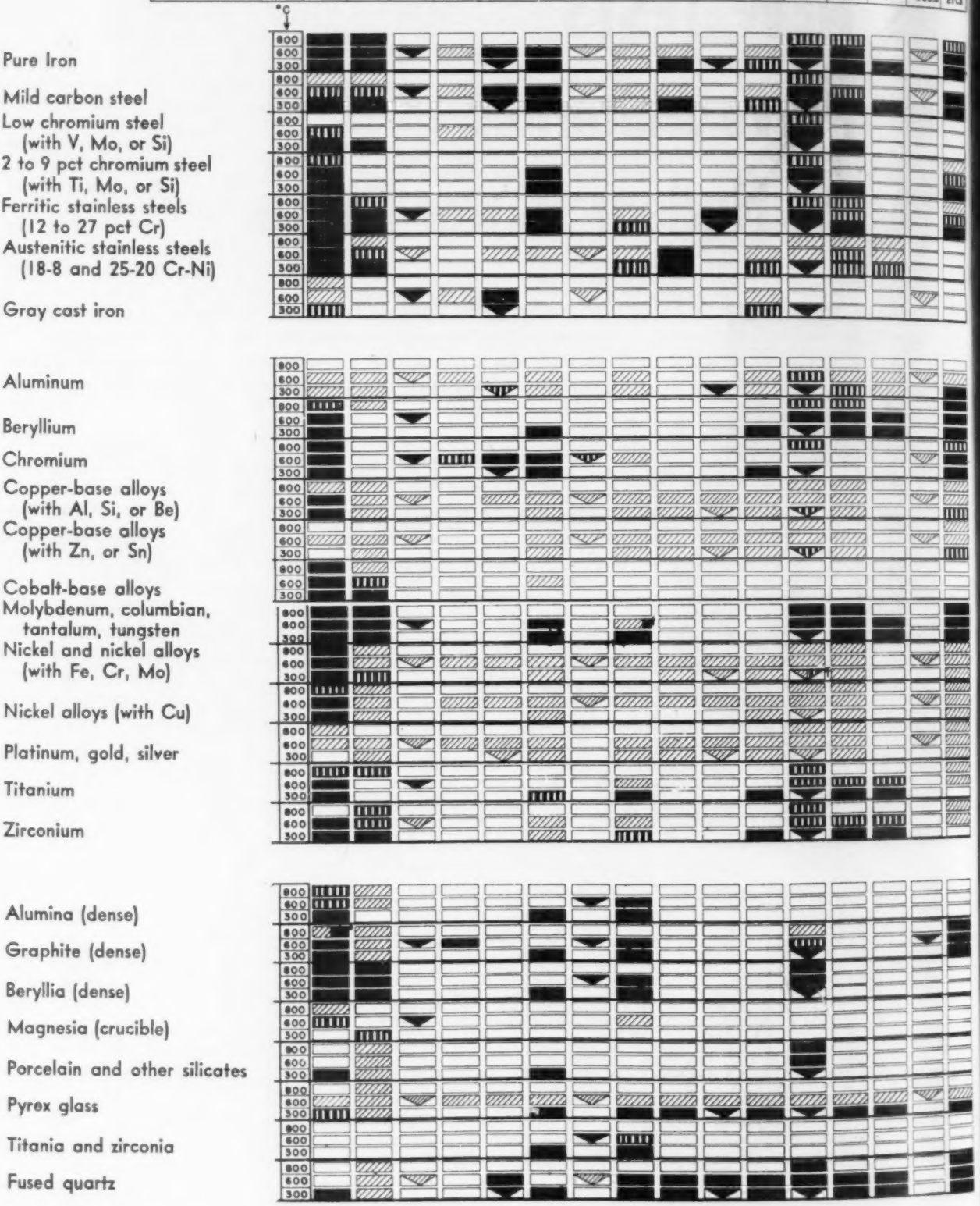
Many commercial and experimental alloys were tested under stress in sodium, lithium, lead, lead-bismuth eutectic alloy, mercury, and other liquid metals. Results vary from excessive attack to complete immunity to attack. For example, austenitic stainless steels withstand attack by sodium at 1000°F most successfully. Their rupture strength is as high or higher in oxygen-free sodium than in air.

If a material has good resistance to corrosion under static conditions, it is then tested under dynamic conditions. The simplest and least expensive way is to rotate a specimen in the liquid metal as shown in Fig. 2, using baffles to prevent the formation of a vortex. The effects sometimes differ from those in static tests. Copper, for example, has good resistance to sodium at 725°F under static conditions but is severely attacked in a rotating specimen test under similar conditions. Gen-

RESISTANCE OF MATERIALS TO LIQUID METALS

TABLE I — At 300°, 600° and 800°C

LIQUID METAL →	Na,K Nak	Li	Mg	Zn	Cd	Hg	Al	Ga	In	Tl	Sn	Pb	Bi-Pb	Bi-Pb-Sn	Sb	Bi
MELTING POINT, °C →	−12.3 to 98.3	186	651	419.5	321	−38.8	660	29.8	156.4	303	231.9	327	125	97	630.5	271.3



Good resistance

Limited resistance

Poor resistance

Unknown resistance

Liquid freezes above this temperature, shading in triangle indicates degree of resistance to liquid at the melting point.

RESISTANCE RATINGS (These ratings refer to liquid-metal resistance only—not to temperature-dependent mechanical strength or metallurgical stability. See text for further discussion.) *(Reprinted from Liquid Metals Handbook)*

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erally, materials behave as well in these tests as they do in static tests as may be seen from the results in Table II.

A temperature differential is the next factor added by the condition of flow. Since solubility of a material in liquid metal depends on temperature, increased attack is possible by so-called mass transfer process. Metal dissolves in the hottest part of the system until the coolant is saturated at that temperature. It then precipitates in the cooler zones until saturation at the lowest temperature is reached.

How sodium affects stainless steel

Flow and temperature differential are provided in the thermal convection loop. In this test, sodium is heated in the vertical leg. As it expands, it rises, flows through the finned portion, loses heat, increases in density, and sinks down the sloping leg to complete the cycle. Little or no attack is observed in loops of stainless steel operated with sodium at temperatures below 1000°F.

Flow in thermal convection loops is limited to velocities less than 1 fps, except in reduced sections. For higher flow rates, forced circulation must be used. Many types of pumps have been tried, but the alternating current electromagnetic pump has been most workable and dependable. Because of the high temperature differentials desired, an economizer is usually incorporated resulting in a figure-eight flow pattern such as that in Fig. 3.

Placing specimens in the hot and cold zones of a pump loop makes it possible to study the effects of flow rate and temperature differential simultaneously. Test results, listed in Table III, show that in some cases a flowing coolant leads to more rapid corrosion than a static coolant. However, the corrosion rate of stainless steel by sodium is not seriously affected by coolant velocity.

If a large heat transfer system is available, materials can be tested under conditions more closely approaching those in service. Specimens can be inserted in special ports in a large 4000-lb sodium system. From results of tests run in such a system at temperatures up to 950°F, it appears that the following materials are very resistant to attack in sodium: types 304, 321, 347, 410, and 430 stainless steel; Inconel X; Inconel X welded to 347; and Carboloy 55A. Nitrided 347 and steels containing 9 pct and less of chromium lost weight which indicated their low resistance to attack.

A final check on the ability of a material to contain sodium is the construction and operation of a system which approaches the actual reactor coolant system in size and thermal conditions.

Most nuclear power plants will include aqueous systems for steam generation, and for shielding, moderating or cooling auxiliary components. Added to the corrosion problems in conventional systems are effects of irradiation. Water and many common corrosion inhibitors and pH buffers tend to decompose during irradiation under certain conditions of temperature and pH (hydrogen ion concentration).

Tests complicated, lengthy

No laboratory test simulates all the effects of irradiation. Materials engineers must perform corrosion tests in operating reactors, particle accelerators or other fields of radiation like the gamma flux from radioactive isotopes. Stressed and unstressed specimens are tested in these experiments to check on general and stress corrosion. Because these tests are complicated and lengthy, they are reserved for evaluating materials most likely to be used in the final application.

At KAPL, a miniature boiler is operated in

TABLE II

ROTATING SPECIMEN TEST RESULTS

Material	Temperature, °C	Corrosion Rate mg per cm² per month
Pure Iron	550	− 1.3
12 pct Cr steel (410)	500	+ 0.1
Type 304 stainless steel	500	0.0
Type 347 stainless steel	500	0.0
Copper	300	− 0.6
Copper	500	−300.0
Hafnium	500	+ 0.1
Inconel X	500	0.0
Nickel	450	+ 0.2
Zirconium	450	+ 0.1
S-816	750	+ 1.0

Duration—1 sodium for 1 month.
Rotation—1725 rpm.
Surface velocity—14 fps.

TABLE III

TEST RESULTS IN FIGURE-EIGHT PUMP LOOPS

Material	Corrosion Rate, mg per cm² per month*	
	Hot Sample 950°F (510°C)	Cold Sample 725°F (385°C)
Pure Iron	−0.2	−0.2
2¼ pct Cr—1 pct Mo steel	−0.5	+0.1
5 pct Cr—1 pct Si steel	−0.2	−0.2
9 pct Cr—1 pct Mo steel	−0.1	+0.1
12 pct Cr steel (410)	−0.1	+0.1
Type 304 stainless steel	−0.1	+0.1
Type 321 stainless steel	+0.1	+0.2
Type 347 stainless steel	−0.1	+0.1
Copper	dissolved	dissolved
Inconel X	0.0	0.0
Nickel	+0.2	+0.2
Zirconium	+0.6	+0.1

*= 0.1 mg per cm² per month.
Duration of test—1 month.
Capacity of pump loop—30 lb of sodium.
Velocity of sodium—10 fps.

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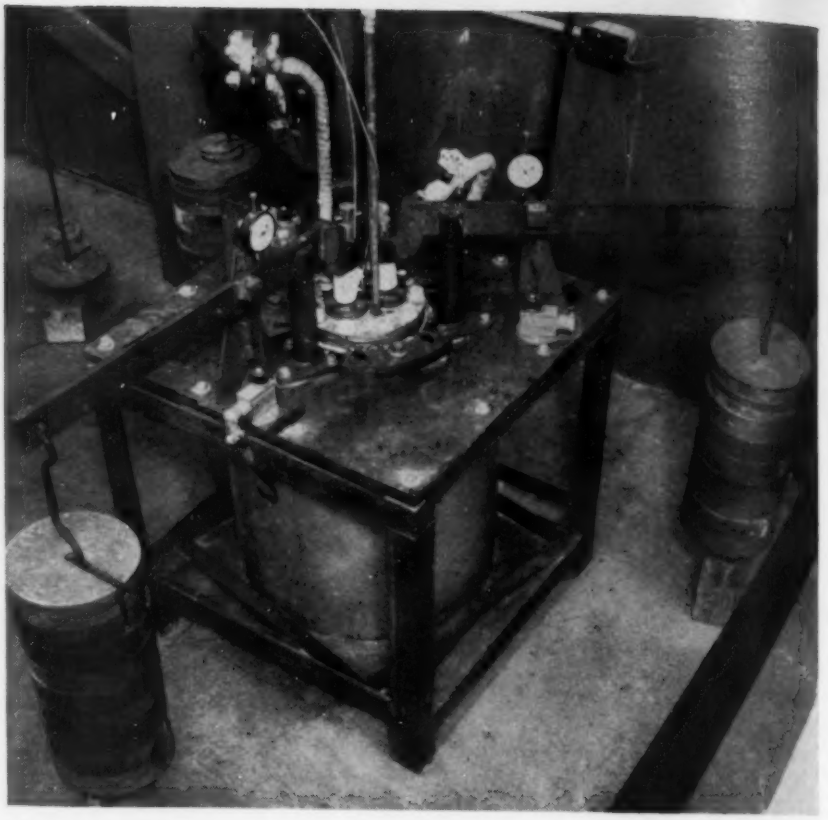

FIG. 1 — Stress-rupture life of materials intended for use in nuclear power plants is tested in sodium in this equipment. Stamp of approval is given to material if its test life equals that in air, and if there is no intergranular attack.

FIG. 2—If material resists corrosion in static tests, it is tested in this equipment which rotates specimen in liquid metal at 1725 rpm for 1 month. Most materials passing static test also pass dynamic test.

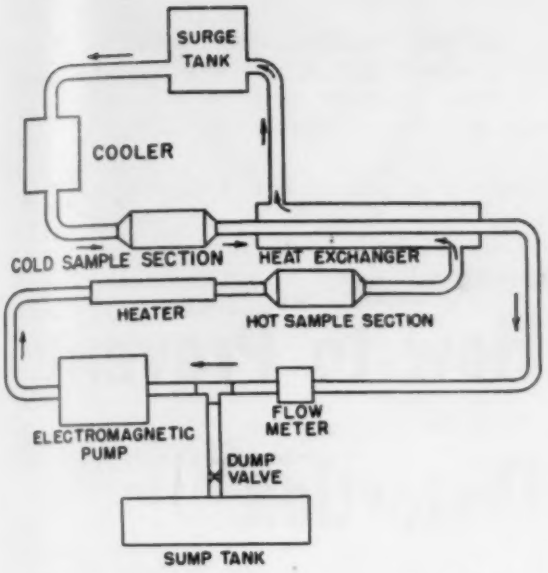

FIG. 3—Material specimens receive hot-and-cold treatment in a figure-eight pump loop. Effects of flow rate and temperature differential on corrossion rate of specimens in sodium are studied simultaneously.

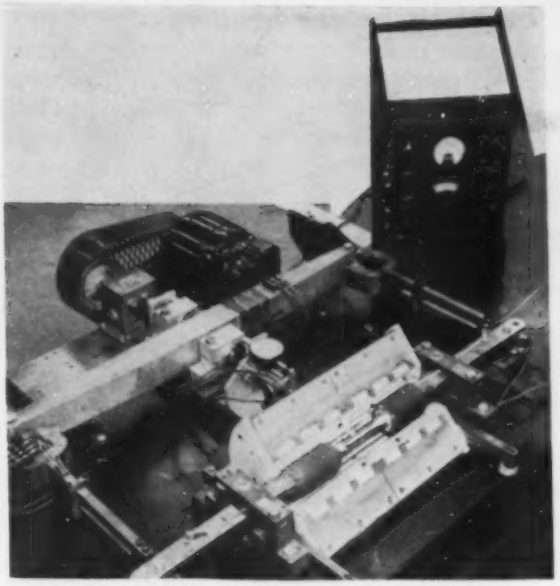

FIG. 4—Special testing apparatus slowly bends a specimen back and forth, sometimes under tension, to simulate strains of thermal cycling. Specimens have been strained ½ pct, then strengthened, 5000 times at 1000°F.

a high gamma flux under intended service conditions of temperature and pressure to study the effects of irradiation on the stability of treated boiler water and the corrosion of system materials.

Room and elevated-temperature properties of most commercial alloys likely to be used in reactor fabrication are readily available. Properties of less common materials like beryllium, hafnium, plutonium, thorium, uranium, vanadium and zirconium, must be determined by tensile, hardness, creep, and stress-rupture tests, often complicated by the toxic nature of some of these metals. In some cases, it is also necessary to determine the effect of irradiation upon such properties as creep strength by running actual creep tests in atomic piles.

Welding of heavy restrained sections, heat treating complicated weldments and making welds to resist thermal cycling and shock become magnified by the need for exceptional reliability of the nuclear power plant. Each welding procedure must be tested thoroughly not only by the standard mechanical tests but in special thermal tests as well.

Full-sized, welded types sections are thermally shocked for KAPL in large-scale tests by the Mine Safety Appliance Co. Specimens of 8-in. schedule 40 type 347 stainless steel pipe, welded with direct-current type, lime-coated 347 electrode, either as-welded or sigmatized for 4 hr at 1350°F, withstood 2500 severe cooling shocks without cracking. The internal surface was cooled 300°F in 1 sec.

Similar tests on a smaller scale are conducted at KAPL. Special apparatus, shown in Fig. 4, was developed in an effort to simulate mechanically the strains which occur during thermal cycling and thermal shock by slowly bending a specimen, sometimes under tension, back and forth.

In tests in this machine, specimens were bent to such an extent that the outer fibers were strained 0.5 pct and then straightened 5000 times at 1000°F without failure. The materials included types 321 and 347 stainless steel, longitudinally welded 347, 347 butt welded to 347, and type 347 weld metal.

Similar tests of 321 and 347 produced no cracking at 600° and 800°F. Welded compartments and subassemblies are also frequently placed in sodium-filled vessels and alternately heated and cooled to evaluate the ability of the design and method of fabrication to withstand cyclic thermal stresses.

Weldments are occasionally heat treated to reduce stresses which remain after fabrication. This is done to ensure dimensional stability at operating temperatures, or to reduce the residual stresses to such a value that additional service stresses will not impair the structure.

Much work at KAPL is with welded austenitic stainless steels which are embrittled by heating in the 1200° to 1500°F range. It is therefore necessary to control heat treatments most carefully. Before heat treating, studies are made of the effects of time and temperature on weld metal properties as well as tests of the effectiveness of heat treatment to reduce residual stresses. These test results show that residual stresses in type 347 stainless steel weldments are appreciably reduced by heat treatment at 1100°F.

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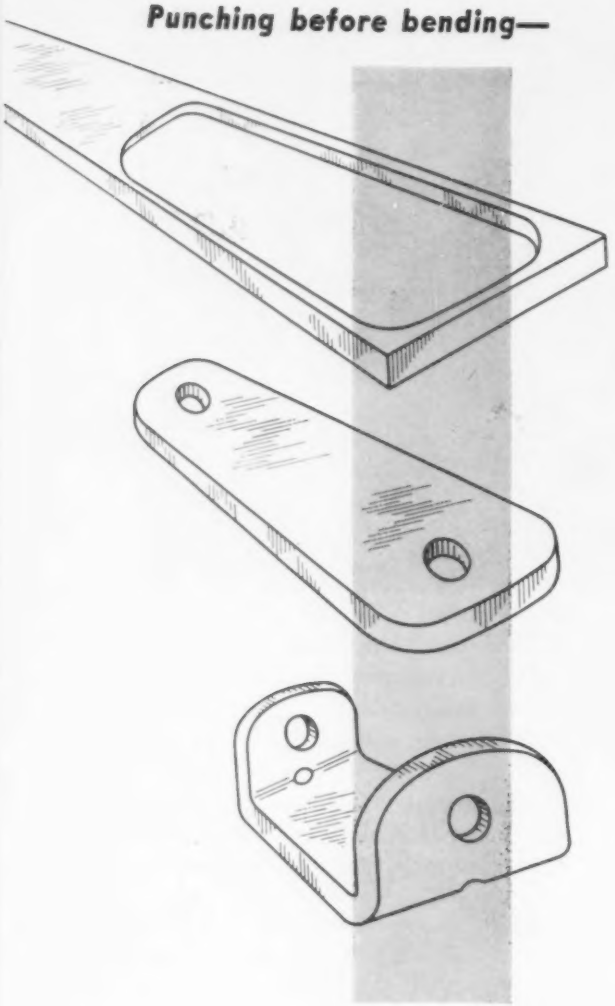
Punching before bending—



How to Prevent Distortion of Pierced Holes During Forming

By Frederico Strasser
Consultant
Santiago, Chile

◆ Holes pierced in blanks before bending are distorted if they are too close to the bending area . . . Distortion can be minimized by piercing a small auxiliary hole in the bending line.

◆ Punching out a segment around a round hole can also minimize distortion . . . Differences in metal flow and elongation can cause distortion in compound parts . . . In high-precision work piercing must be done after bending.

◆ PREVENTING DISTORTION of holes pierced in blanks prior to forming is a problem frequently encountered by tool engineers. Holes pierced in blanks become distorted during bending action if they are located too close to the bending line, Fig. 1. To overcome this, the pierced hole should be placed at a safe distance from the bending zone. For best results, the distance from the edge of the hole to the origin of the formed radius should be equal to at least twice the thickness of the stock, Fig. 2. The distance may be shortened when the stock, its thickness and the forming punch radius are especially favorable but this is not recommended for the majority of cases.

When the pierced hole must be located nearer the bending line than good practice requires, distortion can be prevented by piercing the hole after forming. In this way hole roundness and accuracy of location are maintained. The cost of this method, however, is a serious drawback. Piercing holes at the same time the blanks are stamped is less costly. Punching the holes after blanking and forming requires an extra operation. Due to its slowness the second operation may cost from five to ten times as much as the first blanking operation.

To reduce these costs several methods have been developed which permit punching of holes before the bending operation even though they lie close to the bending line. If there is enough space in the bending zone, distortion can be

minimized by piercing a small auxiliary hole in the bending line itself. During bending this hole will then be strongly distorted while the required holes will remain practically unaltered, Fig. 3.

If lack of space in the bending area doesn't permit the piercing of an auxiliary hole, the problem can be diminished by making the required holes slightly oval, Fig. 4. The bending operation will then distort the oval hole into an approximately round shape, Fig. 5. A third solution consists of piercing the required round hole and also punching out a segment around it, Fig. 6. By this means the required hole maintains roundness.

While these methods reduce costs they do not insure perfect results. Both the roundness and location of the holes produced do not meet close accuracy requirements. In high precision work piercing must be done after bending in second operation piercing dies. A second operation is also necessary in making components with compound bends since stock thickness and temper can change the location of previously pierced holes because of differences in metal flow and elongation. Comparatively thick stock or very ductile metals increase this difficulty. Shown in Fig. 7 are typical examples of parts which must be pierced after forming in spite of the heavy increase in production costs.

This problem may be sometimes overcome even when the material used has comparatively high elongation properties. The part shown in Fig. 8 was made with one elongated hole. By this means the holes can be punched before forming because the elongated shape of the one hole compensates for slight inaccuracies resulting from irregular behavior of the metal.

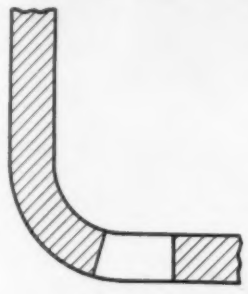


FIG. 1—Holes pierced too near the bending line become distorted during forming.

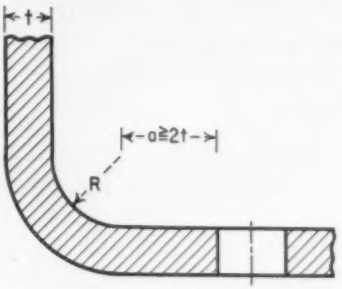


FIG. 2 — Safe distance from edge of hole to center of radius is twice stock thickness.

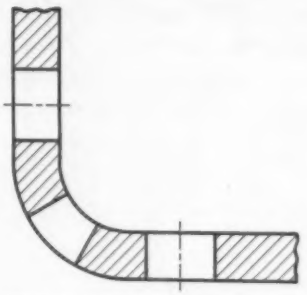


FIG. 3—Piercing small auxiliary hole in bending line can reduce distortion.

FIG. 4—If an auxiliary hole can't be used make the required hole slightly oval.

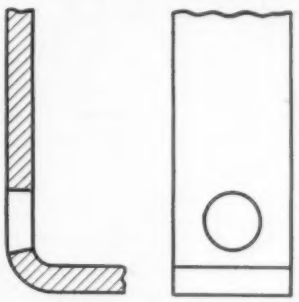


FIG. 5—The bending action will distort an oval hole into an almost round shape.

FIG. 6—Roundness of required hole can be maintained if segment is punched around it.

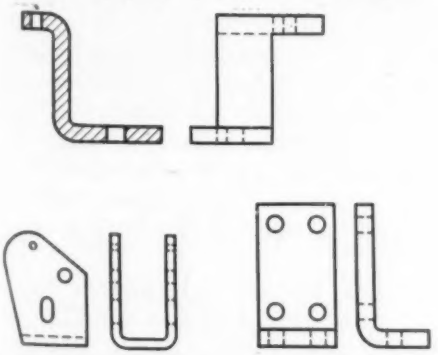


FIG. 7—Typical parts, which must be pierced after forming despite high cost.

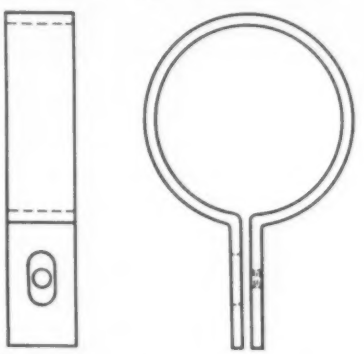


FIG. 8—Elongated hole can compensate for irregular behavior of the metal.

Corn cobs help—

NEW MACHINE POLISHES ZINC DIECAST PARTS AUTOMATICALLY

◆ Zinc diecast door handles for cars are prepared for plating efficiently and economically by polishing in an automatic machine called a Gyro finisher . . . It uses a mixture of ground corn cobs, 30 pct moisture, a powdered abrasive and a detergent.

◆ About 2000 handles are polished per hour . . . Cleanliness is an important feature . . . Five men load and unload parts while one man takes care of maintenance . . . Cleaning in a standard solution is all that's necessary prior to plating.

By Herbert Chase
Consultant
Forest Hills, N. Y.

◆ SMOOTHNESS OF FINISH is one of the most important requisites to good plating on zinc diecast handles for car doors. To get the desired finish, the Ternstedt Div., General Motors Corp., Detroit, uses a new unit, called a Gyro finisher, which automatically polishes 2000 handles per hr. This machine has replaced, to some extent, automatic buffing equipment.

A central column of this machine supports a large spider which carries four vertical cylindrical heads projecting downward. Each head is equipped with 30 short horizontal radial shafts or holders onto which the handles are fastened by clip springs.

About every 30 sec, the spider is elevated, indexed to advance the heads 90°, then lowered. Two heads enter barrels containing an abrasive mixture. When the heads reach the lowest point, covers seal the barrel tops. The two remaining heads at this time are in the loading and unloading positions.

Polishing is done by a mixture of ground corn cobs, 30 pct moisture, a mild powdered abrasive and a detergent. The two barrels containing the mixture rotate slowly in opposite directions on vertical axes. Each head in the polishing mixture rotates in a direction opposite to its respective barrel.

A plow in each barrel is set to keep the mixture stirred continually so that it does not cling, channel or cake. As the handles are moved through the mixture by the rotation of both the barrel and head, polishing is effected on all surfaces of the handles. To further aid uniformity of finish, the short shafts which hold the handles are automatically feathered 90° every 7 sec to advance all surfaces into the stream of the mixture. The shafts are spaced so that there is no contact between castings when they are feathered.

While two heads rotate in the polishing mixture, the two heads at the loading and unloading stations remain stationary. Five men are needed at these stations to keep pace with production. A sixth man takes care of machine maintenance and replenishes the polishing mixture when necessary.

As the handles are unloaded, they are placed immediately on plating racks suspended from an adjacent overhead chain conveyor. The handles are then carried to plating tanks without undergoing further intermediate processing. Besides casting, polishing and plating, only two other operations are performed—trimming of flash and broaching a slot.

About 250 lb of mixture is added in small quantities during each 8-hr shift. The entire charge is changed after about 50,000 handles have been polished, or about once every three shifts.

Although the abrasive mixture contains 30 pct moisture when placed in the machine, much of the moisture is evaporated by heat generated by the abrasive action so that the operation is essentially a dry one. However, there is

MR. CHASE, engineer, former trade magazine editor and author of engineering texts, is closely associated with many of the latest industrial developments.

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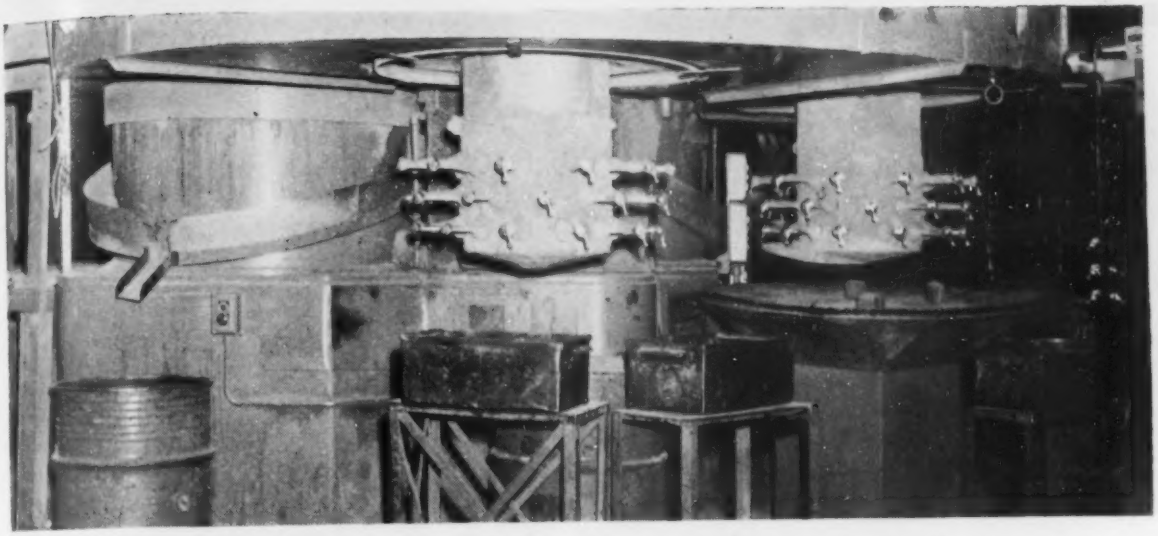
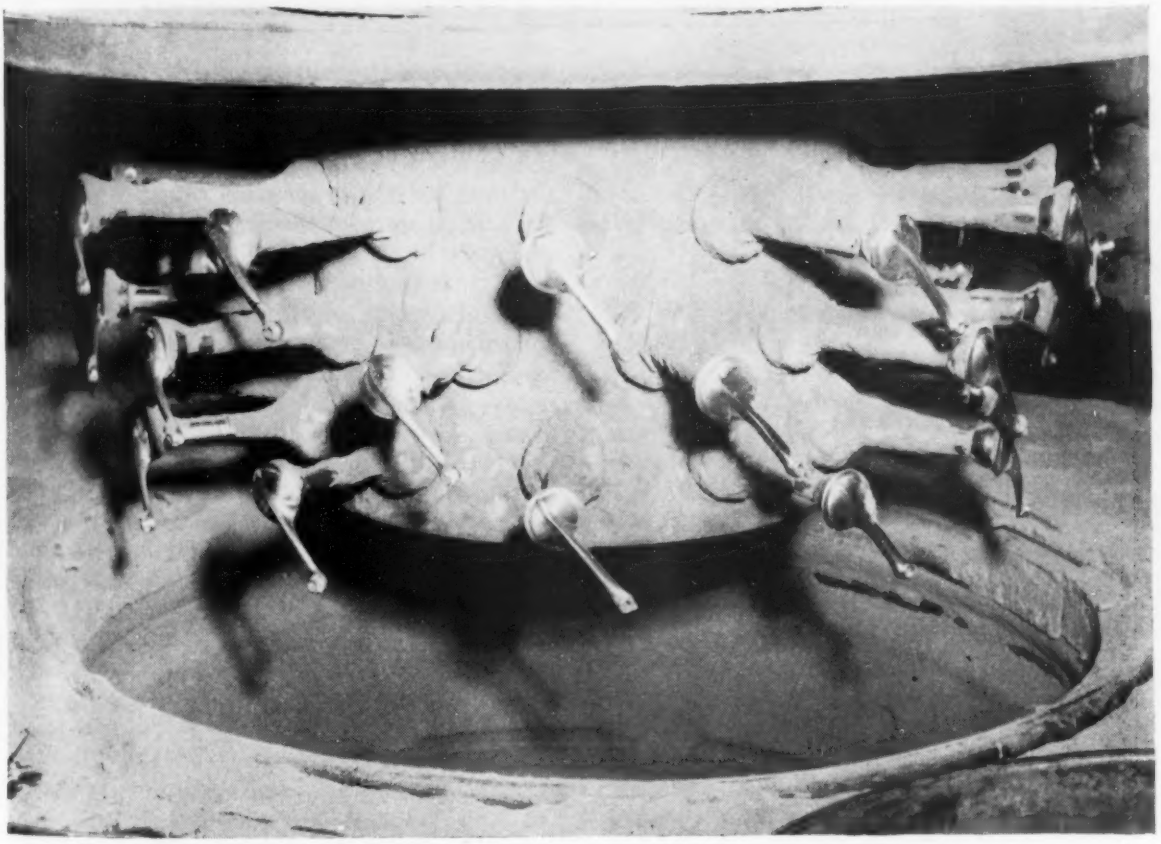


TWO HEADS of Gyro finisher remain stationary for loading and unloading. Remaining two heads rotate slowly through a mixture of ground corn cobs, 30 pct moisture, mild detergent and finely powdered abrasive. About 250 lb of the mixture is added during an 8-hr shift.

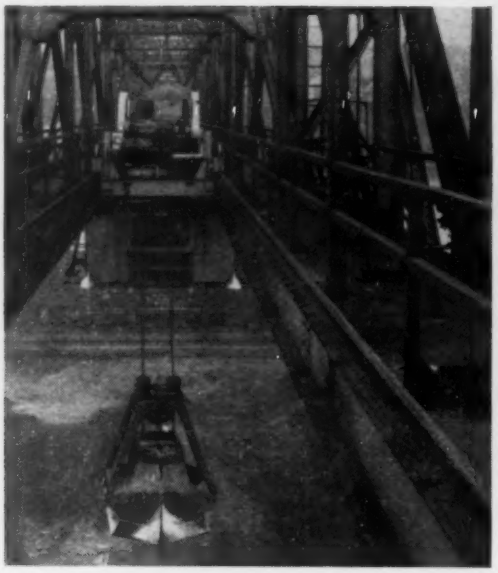


CAR DOOR HANDLES about to be lowered into barrel containing an abrasive mixture. The short shafts on which handles are placed feather 90° every 7 sec to allow uniform polishing as handles move through the mixture. A plow in each barrel keeps the mixture stirred continually.

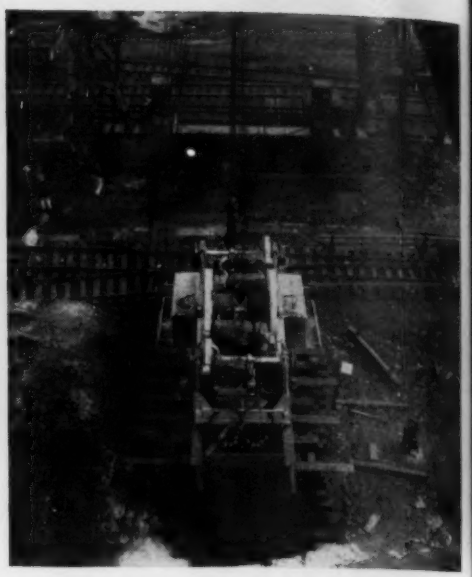
little or no dust from the operation. What little dust may be generated is exhausted through a hood covering the machine.

Good casting techniques and effective polishing of all surfaces give the handles a smooth hardware finish. Every detail of the casting cavity is accurately reproduced.

Polishing in the Gyro machine is closely equivalent to buffing but avoids the use of buffs and buffing compounds. The latter sometimes burn on and are somewhat difficult to remove. Gyro finishing, at worst, leaves only a light coating of dust which is easily removed in a standard cleaning solution just prior to plating.



CAPACITY JUMPED from 5 to 8½ tons on blast furnace ore bridge.



ASSEMBLY ON GROUND saved valuable time in installation of new trolley.

LIGHTER TROLLEYS Speed Handling of Coal, Ore

By H. J. King
Engineer
Crane and Bridge Dept.
Dravo Corp.
Neville Island, Pa.

◆ Stepped up production demands in steel plants have strained ore bridge capacity . . . One way to keep coal and ore moving at new high rates is to install lightweight trolleys on old bridges.

◆ Pounds saved turn up as added capacity for handling materials . . . Welded design and aluminum are important factors in achieving weight reductions . . . Smaller wheels, heat-treated axles are used . . . New equipment cuts maintenance costs.

◆ STEPPED UP PRODUCTION demands on blast furnaces, coke ovens and similar facilities place a heavy burden on materials-handling structures which supply them with iron ore, coal and other raw materials. Many companies are confronted with the problem of stepping up the operating capacity of ore and coal bridges to meet these growing production requirements.

If a materials-handling structure is in good condition, or can be repaired, its performance may be improved by installing a new trolley of lightweight design. This permits use of a larger bucket without increasing total load on the bridge. The pounds saved in the new trolley simply are put into larger capacity bucket.

Construction of a new bridge for handling raw materials not only requires considerable time but represents a substantial investment. In comparison, a new trolley of lightweight design can be installed with a minimum of down-time for the bridge. By assembling and wiring the trolley on the ground, it usually can be hoisted into position and placed in operation in less than 24 hours.

Coupled with the need for additional capacity, it is often the case that the existing trolley has outlived its economic useful life and requires excessive maintenance with frequent outage time. This boosts costs and is marked by a lack of dependability.

In designing a lightweight trolley for an ore or coal handling bridge, a principal consideration for conserving weight is the trolley frame. Existing trolley frames usually have builtup riveted girders with angle frames and angle stiffeners. Weight can be saved by using all-welded corrosion-resistant alloy steel for the frame. Use of corrosion-resistant steel permits

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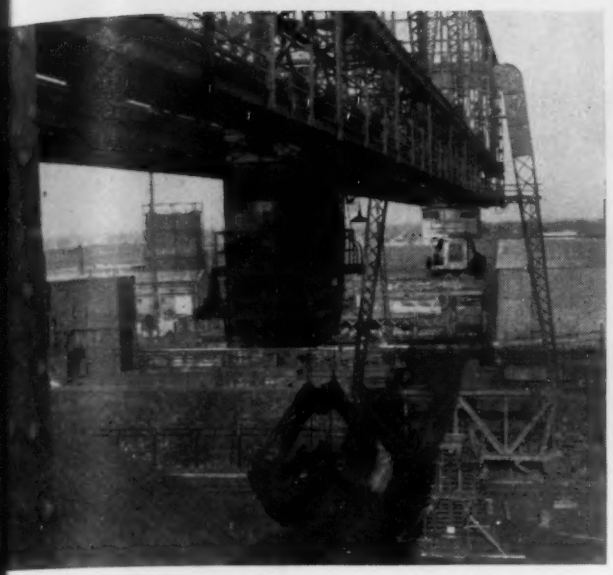
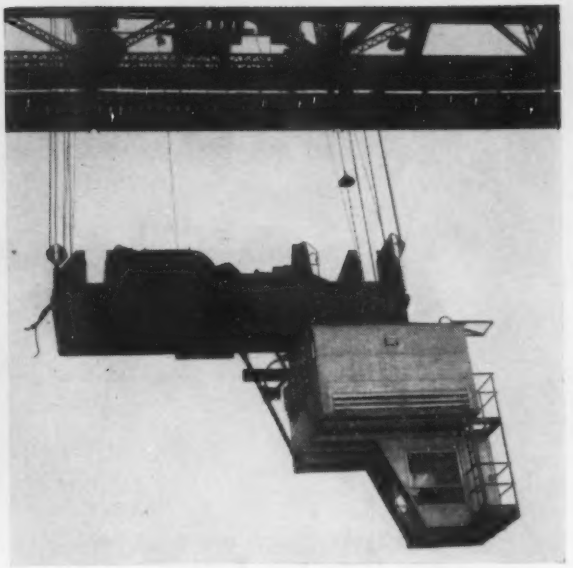


ALUMINUM in operator's cab and machinery house walls, cuts weight of new trolley.



LIGHTWEIGHT man trolley replacement is hoisted to span of ore bridge.

a reduction in thickness of webs and floor plates. Foundation pads for motors, brakes and bearings can be welded, unfinished, directly to the frame and then machined to accurate levels. Welded construction also eliminates the old problem of loose rivets.

Many existing trolleys have gearing that is only partially enclosed and must be lubricated with extra-heavy grease. Moreover, gearing is not heat treated. Overhanging pinions instead of independently supporting them between bearings will require less weight and is often necessary as new trolleys must run on existing narrow gage rail.

By heat treating the drum gears, a narrower face can be specified. This permits extension of the rope area on the drum and reduces its diameter. Reduction in drum diameter, plus substitution of welded construction for castings, also helps reduce the weight. Use of individual hold and close hoists instead of clutch-engaged drums eliminates a troublesome maintenance problem.

In the trolley travel drive, additional weight can be saved by using smaller wheels and heat-treated axles. Heavy motor cradles can be eliminated by more modern arrangements.

Liberal use of aluminum for such accessories as the operator's cab, machinery house walls, resistor racks, window frames, etc., reduces the total weight.

Although some poundage may be conserved by utilizing "600 Series" mill-type motors, generally a portion of the savings should be applied to motors and controls of larger capacity so the increased load can be handled safely. It may be possible to effect some savings in weight by the purchase of a new bucket of lighter material. This permits an increase in cubic capacity.

Combination of a lightweight bucket with a lightweight trolley recently resulted in doubling the production capacity of a 24-year-old ore bridge. The original trolley, with its 5-ton bucket, weighed approximately 86,600 lb. The new trolley, with an 8½-ton bucket, weighs only 85,000 lb. Savings in weight were made both in the trolley and the bucket. Operating on 59-second free-digging cycles, the new trolley handles 620 tons per hour in contrast with the original trolley's rated capacity of only 300 tons per hour on 60-second cycles.

In designing such trolleys, it may be necessary for the owner to make concessions as to preferred mechanical arrangements, but full safety factors and dependability of operation should be incorporated in the result.

A logical question would be, "Why not install lightweight trolleys on new bridges or towers?" The answer to this question is that certain features which make it possible to design trolleys lighter in weight than some of the older trolleys, are being used on new installations. A new trolley is designed for a bucket large enough to produce the required capacity, and the further weight savings possible by use of aluminum or alloy structures, for instance, will result in very little savings in the overall cost of a new bridge or tower.

Each new trolley design taxes the ingenuity of the designer because he is usually faced with limiting weight factors which must be met if benefit is to result. He is further tied to existing conditions as to width, length and height. It is not possible to replace all older trolleys with a resulting capacity increase but the possibility should be investigated.

Resists abrasion—

COATED FLEXIBLE TUBING Wears Longer in Chip Disposal System

By W. G. Patton
Assistant Technical Editor

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◆ Neoprene-impregnated flexible tubing has replaced sheet metal in fast-wearing sections of a chip disposal system . . . Sheet metal sections up to 1/8-in. thick formerly failed after six to eight weeks service.

◆ Use of coated flexible tubing sections has cut down abrasive wear from hot cast iron chips moving at high velocity . . . It also resists attack by cutting oil . . . Some sections show no marked deterioration after two years.

◆ NEOPRENE-COATED flexible tubing has successfully resisted the abrasive effects of cast iron chips where sheet metal up to 1/8 in. thick formerly failed after as little as 6 weeks' to 2 months' service.

At its Lynch Road plant in Detroit, Chrysler Corp. makes a number of the vital components for all Chrysler lines of cars. Lynch Road, for example, machines cast iron brake drums for all Chrysler divisions. Starting with the rough casting weighing about 15 lb, an average of 8½ oz of chips must be removed before the drums meet Chrysler's exacting specifications, see Fig. 1.

Machining tolerances are closely held. For example, concentricity is held within 0.004 in. max. Microfinish is held within 50-120 microinch. Hardness of the drums as-cast is in the range of 160-223 BHN. Carbide tooling is used on all machines.

As shown in Fig. 2, 26 Sundstrand stub lathes are kept busy 16 hr per day to meet Chrysler's

Helps move more than a ton of chips a day

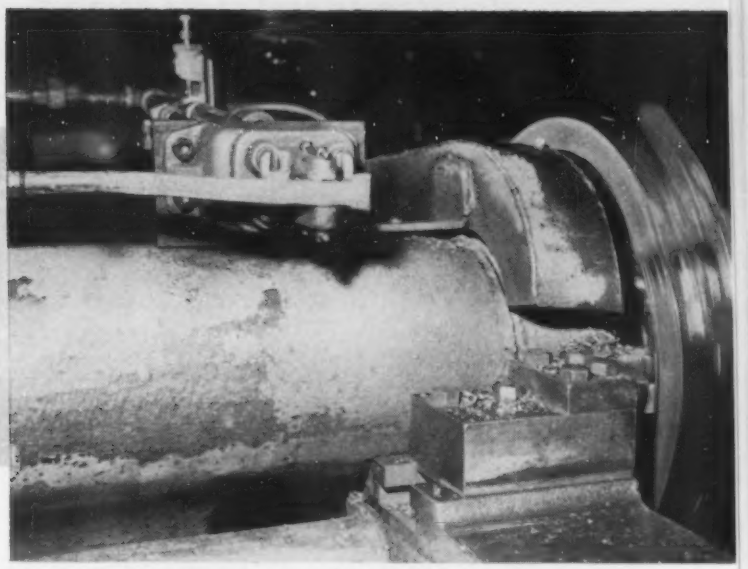

FIG. 1—Machining cast iron brake drums calls for removing an average of 8.5 oz of chips per drum. Carbide tooling is used.

production requirements. Chips generated during the finishing operation are removed through a vacuum system. A 40-hp motor exhausts 14,000 cu ft of air per min from the system.

Vacuum on the inlet side of the collector is equivalent to a column of water 6 in. high. The static pressure at the discharge side is equivalent to a 12 in. water column. Tubing used to carry away chips ranges from 4½ in. ID at the individual lathes up to 12 in. ID at the chip discharge end of the system.

Operating experience has demonstrated that the vulnerable location in the Chrysler-Lynch Road chip disposal system is the point at which the fast flying chips, removed by vacuum from the turning lathes, change direction so they can be carried overhead.

About half of all of the chips generated are carried off by the overhead systems; the remaining half of the chips collect in a shroud surrounding the machine, see Fig. 3. These chips are removed daily.

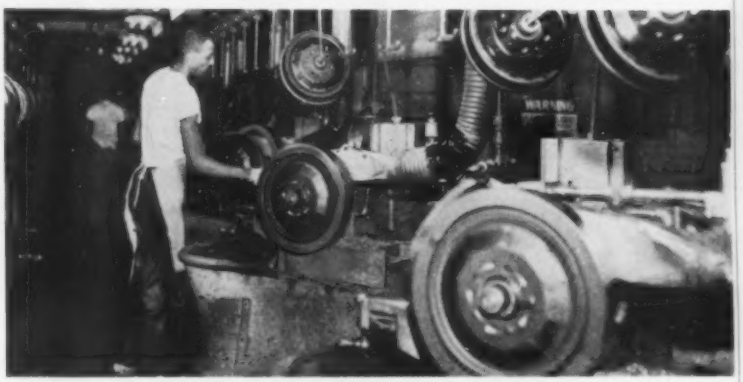

FIG. 2—Chips generated by these Sundstrand stub lathes in finishing operation are removed through a vacuum system.

Minimum service life one year

Sheet metal tubes up to ⅛ in. thick often failed in 2 months or less in this service. Using a 3-ft length of flexible tubing made of a long helix of wire wrapped with cotton duck and impregnated with neoprene at only the critical change-of-direction location has resulted in minimum service life of a year. Some of the flexible, neoprene-coated sections show no marked deterioration after nearly 2 years' service.

The flexible tubing, Spiratube R4, is light and easily installed by clamping to sections of rigid metal tubing. The flexible tubing resists vibration. The Neoprene coating resists attack by cutting oil as well as abrasive wear resulting from hot chips flying at high velocity.

The Lynch Road chip system removes a minimum of 1100 lb of highly abrasive cast iron chips every 8 hr. After being carried through

FIG. 3—About half the chips are carried off by overhead systems. Remaining chips are collected in shroud shown here.

Maintenance cost of the chip disposal system has been reduced substantially . . .

the tube system, chips fall into a large Centri-Swirl collector, Fig. 4, built by Schmeig Industries. Baffle plates at the top of the collector slow down the chip velocity. With their energy spent, the chips fall into a water bath at the bottom of the collector. A continuous conveyor delivers the chips finally to a chip buggy for removal, see Fig. 5.

According to Chrysler-Lynch Road officials, maintenance cost of the chip removal system has been reduced substantially by the installation of the flexible, abrasive-resisting section. Continuity of operations has also been improved since the neoprene-impregnated tubing was substituted for sheet metal at the critical, fast-wearing areas in the chip removal system.

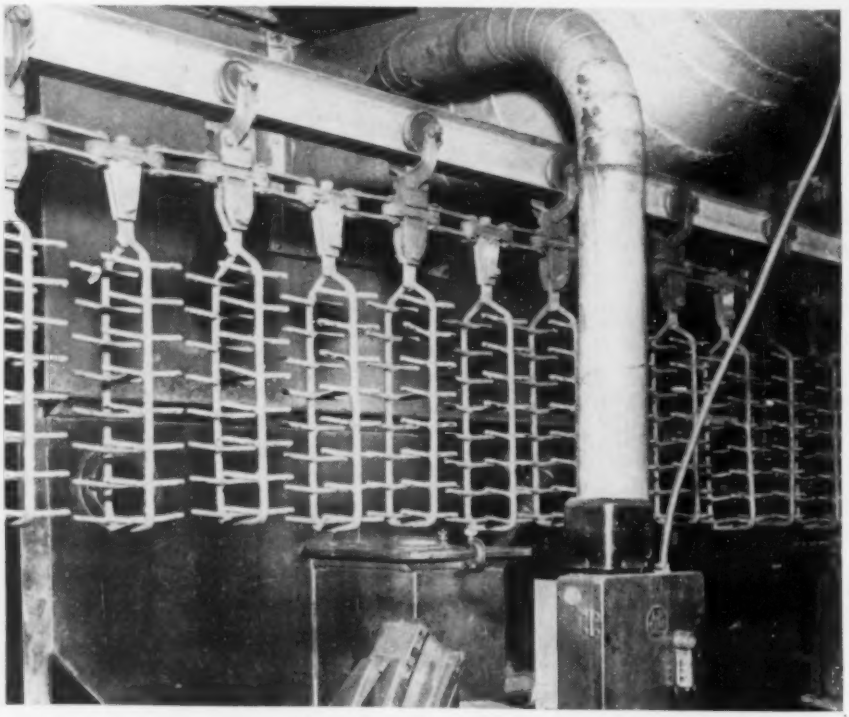

FIG. 4—After chips are carried from machines through the tube system they fall into this large Centri-Swirl collector.

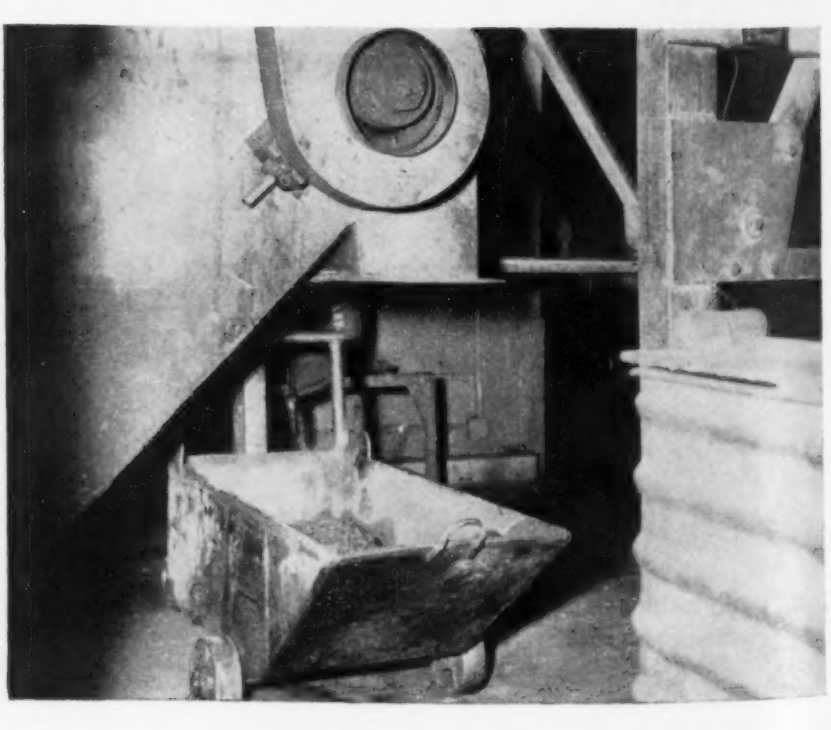

FIG. 5 — A continuous conveyor delivers chips to chip buggy for removal. Coated flexible tubing lowers maintenance costs.

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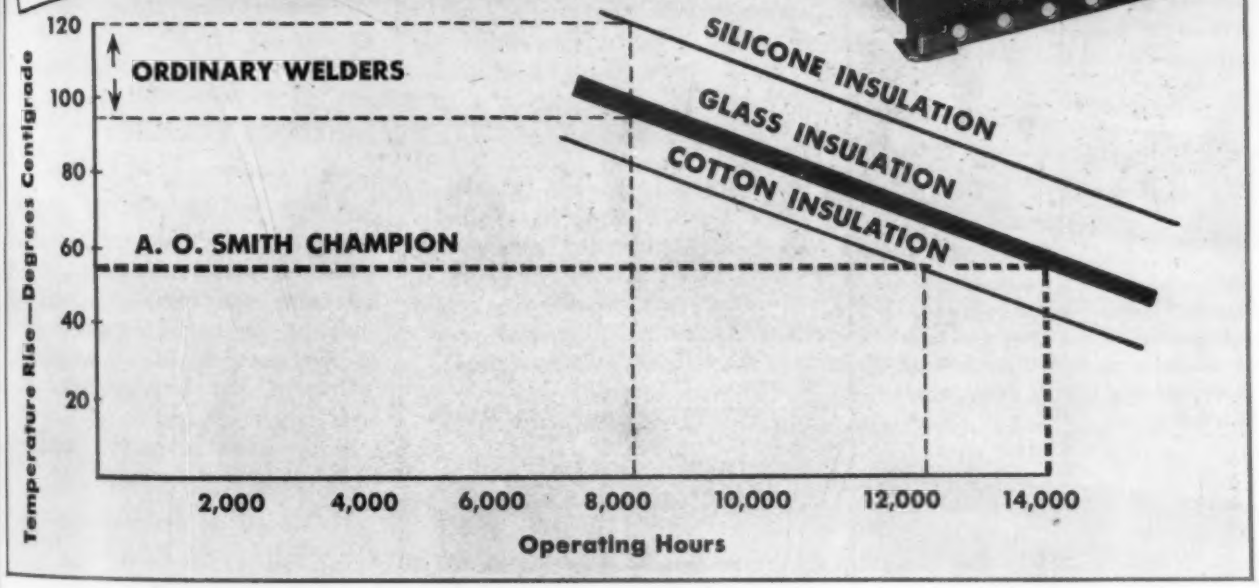

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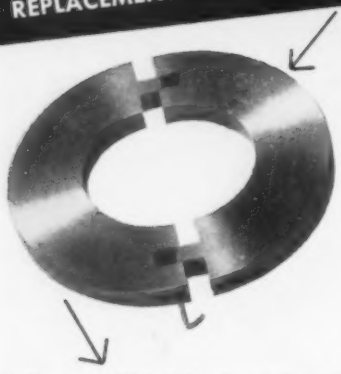

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Technical Briefs

TOOLING:

Clamp block with interchangeable inserts saves much time.

Both man-hours and material have been saved in processing of tubing at Temco Aircraft Corp., Dallas, Texas, through use of an unusual master clamp block with interchangeable inserts.

Inserts Replace Blocks

The adjustable block, designed for use with a Vaill No. 7 tube end forming machine, substitutes the inserts for additional blocks which normally would be required to hold different sized tubes.

The master block duplicates the standard clamp block in all external dimensions except length. Here an extra ½ in. is added to provide a rim or shoulder against which the inserts fit securely.

How Block Is Bored

Internally the block is bored to a diameter of 3 in. for a length equivalent to that of the standard block. The extra ½ in. of length is bored to a 2½ in. diameter which gives the shoulder a height of ¼ in.

Each insert is made in two semicircular sections which fit together, narrowing the master block bore to fit various tube sizes. Two bolts hold inserts and master block together during handling, and pressure exerted in tube processing forces inserts firmly against the master block.

MASTER BLOCK with set of nine inserts, used in Vaill tube forming machine, has saved both time and material for Temco Aircraft Corp.

Savings With First Set

Savings resulting from the master block-insert combination increase directly with the number of different sized tubes being processed, according to Temco officials. They point out that the first set consisting of one master block and nine inserts designed for tube sizes ranging from ½ in. to 2 in. saved an estimated 315 man hours in fabrication time alone, and that greater savings will be achieved as additional sets are required.

IF YOU WANT MORE DATA

You may secure additional information on any item briefed in this section by using the reply card on page 87. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

MATERIALS HANDLING:

Big ore conveyor belt requires special shipping facilities.

Special shipping arrangements were necessary to handle a big new iron ore conveyor belt recently built by Industrial Products Div. B. F. Goodrich Co. Akron, Ohio.

One of the heaviest conveyor belts ever made and shipped in one roll, the steel cable belt weighed 53,800 lb crated for shipment.

Moved on Special Car

The roll stands 13 ft, 6 in. high and contains 1630 ft of 54 in. wide belt. A special gondola type flat car was needed to move the giant belt to the East Coast where it will be used to unload foreign iron ore at a new railroad dock.

The belt is designed to handle over 5000 tons of ore an hour, carrying the material 1500 ft from shipside to the carloading house. A second roll of the same dimensions will complete the installation. The belts will be made endless at the dock by steel cable belt splices.

CORROSION RESISTANCE:

Aluminum stitched with galvanized steel wire studied.

Corrosion resistance of both clad and unclad 24S-T3 aluminum alloy stapled together with galvanized steel wire may be "satisfactory" for some types of installations, a recent study by the National Bureau of Standards indicates.

Exposed 37 Months

Stapled specimen sheets of this high-strength aluminum-copper-magnesium alloy, about 4½ pct Cu, and 1½ pct Mg, were exposed in a marine atmosphere and in the tidewater.

Results for exposure periods up to 37 months indicate that both types of sheet joined in this fashion have satisfactory corrosion resistance for service in marine atmospheres.

More Widely Used

Where the installation is subject to frequent wetting by sea water, however, only the Alclad alloy appears satisfactory. The Bureau's study was conducted by Fred M. Reinhart of the NBS corrosion laboratory, under the sponsorship of the National Advisory Committee for Aeronautics, the Navy Bureau of Aeronautics, and the Air Force Wright Air Development Center.

Galvanized-steel wire stitching, or stapling, as a means of joining aluminum sheets has been used increasingly since early in World War II. Fast and economical, this relatively new method has given good results in the construction of non-loadbearing walls and partitions in the interior of aircraft.

Sealing Material Helps

Although the joints are not inherently as leakproof as those made by other methods, the use of suitable sealing materials can overcome this objection. Wire stapling of sheetmetal is reported to have been extended more recently to non-aircraft applica-

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• ACCO *Registered* Wire Rope Slings and Fittings are stocked by ACCO Sling distributors. That means you can get quick service if you need additional parts, or if some part should become damaged. In case of damage, you don't send a "special" sling back for repairs. (You know how long that takes.) You just order a replacement part from your distributor who delivers promptly.

ACCO offers you a complete line of links, safety shackles, and hooks. These items are all *Registered* and *Warranted* to have the same strength and dependability as the slings they are to be used with.

Find Out Now *what you can do with ACCO Registered Wire Rope Slings. See your ACCO Sling distributor or write our Wilkes-Barre, Pa., office for literature.*

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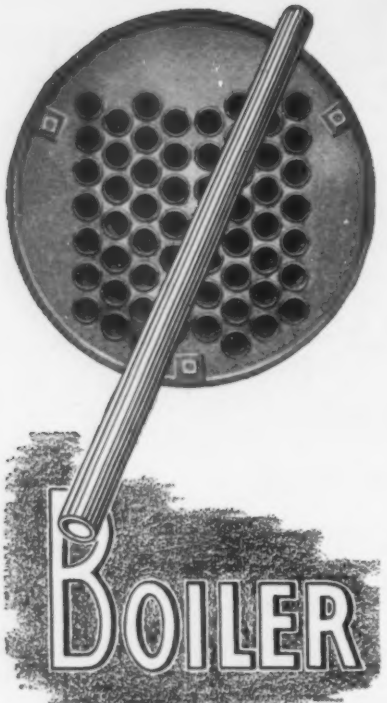

Uniform strength, accurate dimensions and high ductility are three of the many qualities found in Murray boiler tubes. Welded or seamless tubes in sizes ranging from ⅜- to 8-inch OD are available for immediate shipment from warehouse stocks.

If you have a tubing problem, the experience of our specialists and the research facilities of our suppliers are at your service.

Other Murray products include carbon and stainless steel tubing and pipe for pressure and mechanical purposes; welding and screw type pipe and tube fittings. Tube bending, upsetting, swaging.

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tions, including interior panels in buses and in houses.

One Operation

Thermally insulated wall panels are readily fabricated by stapling layers of insulating material to the metal sheeting. A single stapling operation can fasten the insulation to the metal sheets as well as joining the sheets to each other.

In the NBS work, stapled panels of each material—24S-T3 and alclad 24S-T3—were subjected to intermittent sea-water immersion by exposing them in the tidewater. Other panels of each material were exposed in a marine atmosphere but not subjected to wetting. Panels were observed periodically and were removed for macroscopic and microscopic study after exposure periods of 6, 11, 22, and 37 months.

The unclad 24S-T3 panels exposed to tidewater deteriorated rather rapidly. After two months the zinc coatings on the steel staples were white with corrosion. After six months the zinc was entirely gone from the staples, which by this time were covered with dark adherent rust.

Test Results

Microscopic inspection at six months showed that directly underneath the staples the sheets had cracked by stress corrosion, the cracking having started at the faying surfaces of the sheets. By the end of 37 months the staples were badly rusted and pitted, and the sheets in the area of the staples had suffered severe crevice corrosion, intergranular corrosion, and stress corrosion cracking.

Attack Less Severe

The Alclad 24S-T3 panels stood up much better in the tidewater exposure. The attack on the zinc coating of the staples was much less severe. Even after 37 months some of the zinc-iron alloying layers were still present and the underlying steel had barely begun to pit. No corrosion products between the faying surfaces of the Alclad sheets, indicating little if any crevice corrosion. Although most of the aluminum cladding had disappeared from the faying surfaces at 11 months, the core material had not been attacked even at 22 months. Only after 37 months exposure did the core show pitting and—but only in one area—stress corrosion.

When exposed in a marine atmosphere, there was very little corrosion of either the Alclad or the unclad alloy, even after 37 months. The staples on both specimens were still coated with grey corrosion products, indicating that zinc or zinc-iron alloy layers were still present. None of the staples was significantly pitted. Faying surfaces of the 24S-T3 panel were slightly pitted, but no evidence of inter-granular corrosion or stress corrosion cracking was found.

Sealing Compound Recommended

The protective aluminum layers on the Alclad 24S-T3 sheets were pitted at a few areas of the faying surfaces, but in no case had the pits corroded to half of the thickness of the layers. Crevice corrosion was quite mild—there were only small amounts of corrosion products between the faying surfaces of the unclad panels and very little between surfaces of the Alclad panels.

PRECISION SLITTER installed at Rodney Metals, Inc., New Bedford, Mass., was specially designed for slitting light gage stock. Unusual regrinding arrangement assures better coils and edges. Each slit strip has individual takeup and tension controller.

WELDING:

New flame cutter scarfs edges in three dimensions.

A "three-dimensional" flame cutter that scarfs the edges of curved metal pieces has helped cut time involved in preparation of parts for welded assembly. The semiautomatic equipment speeds up and makes more uniform the preparation of welding joints, it is claimed.

The new cutter, which operates vertically, horizontally and at angles from both the vertical and horizontal was developed by Milwaukee Shipbuilding Corp., Milwaukee.

The equipment centers on a flame cutter which moves under power as it follows the curves of the metal under process. The cutting flame slants at a constant angle from the desired apex of a scarfed edge.

All or Part Circuit

A system of twin rails rises, falls, tilts and turns to match the metal under process. Four spring loaded drive rollers and a spring loaded idler roller keep the moving unit true to the path of the rails.

The rails on which the unit rides are mounted on the fixture which holds the metal under process. Rails can be built in a complete circuit, if the job so requires, or in any portion of a circuit, guiding the unit up, down and around like a roller coaster. It has been found practical, however, to avoid cutting upward more than 22° if falling slag is to be kept away from the head.

THREE DIMENSIONAL cutting unit scarfs edges of curved parts, can speed up preparation of metal for welding, assure more uniform welded joints.

THE HALLDEN MACHINE COMPANY

THOMASTON, CONNECTICUT

Sales Representatives

The Wean Engineering Co., Inc., Warren, O. T. E. Dodds, Pittsburgh, Pa.

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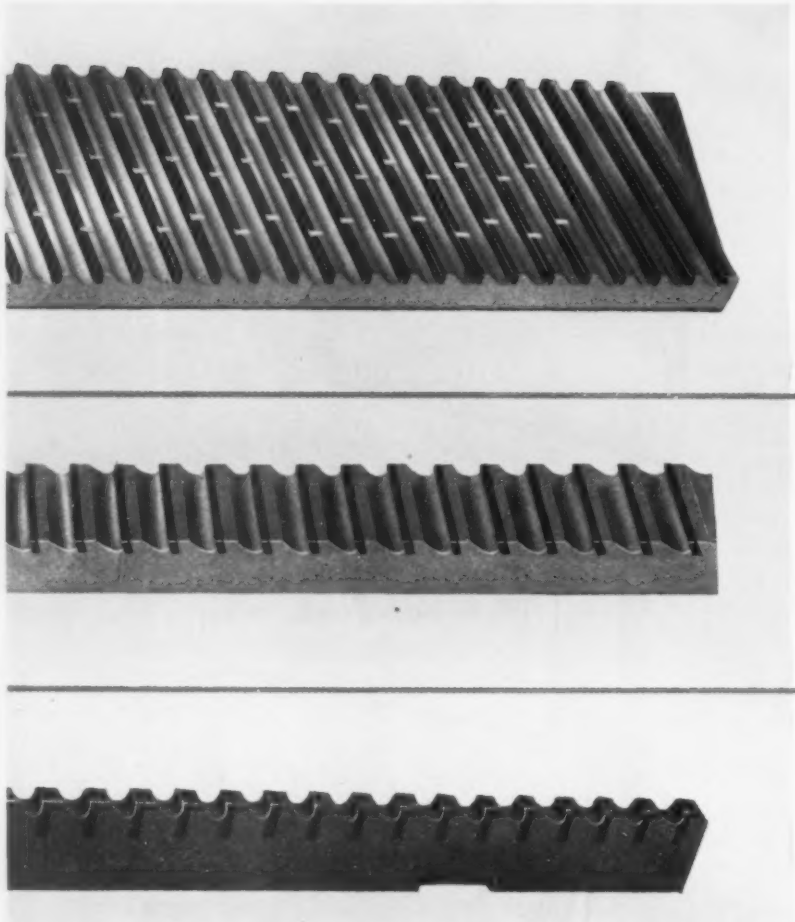


With Continental Carbide tipped broach you'll get more pieces per grind, more pieces per broach, and more pieces per dollar. They are especially effective on cast iron parts.

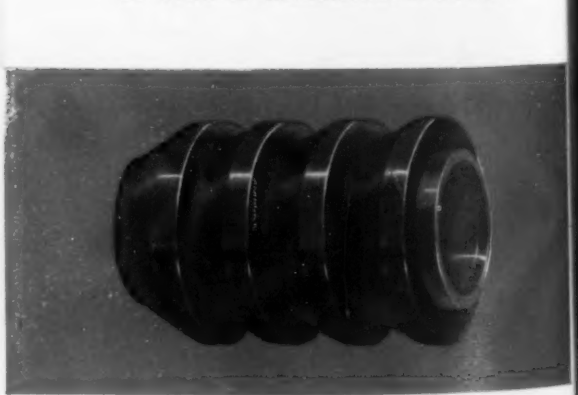
Carbide tips may be used in all the broach teeth or in the finishing teeth only. Continental Tool Works Division of Ex-Cell-O has the technical knowledge to help you; Continental has been designing and building solid carbide and carbide tipped cutting tools since 1930.

For information regarding your application, or for a quotation on carbide tipped broaches, just give your local Ex-Cell-O representative the detail or write to Continental in Detroit.

TOP: Carbide tipped sections of a Continental Surface Broach. Note the chip breaker grooves in the semi-finishing teeth and the solid finishing teeth.

MIDDLE: Carbide tipped finishing section of a Continental broach used on a cast iron application.

BOTTOM: Rough cast-iron parts made it necessary to use this carbide tipped broach to obtain satisfactory tool life in cutting half-round slots.



Solid carbide shell used on the finishing end of a High-Speed steel broach to hold size in cast iron parts.

53-14

CONTINENTAL TOOL WORKS
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EX-CELL-O CORPORATION

Continental TOOL WORKS DIVISION OF EX-CELL-O CORPORATION DETROIT 32, MICHIGAN

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THE IRON AGE SUMMARY . . .

Purchasing agents getting back into driver's seat
Detroit Transmission disaster speeds market change
Business still good despite the expected decline

Steel buyers, who have waited a long time for the worm to turn, are getting ready to climb back into the driver's seat. They are convinced that a buyer's market, if not here already, is just around the corner.

Actually, the shift in relationship between supply and demand has been going on all summer. It was gaining momentum the past 2 weeks—before Detroit Transmission fire disaster gave it an extra push. The pendulum will swing faster now. Within days you'll hear a lot of talk about the decline in steel business—as if the plague had just struck.

It won't really be that bad. A fourth quarter decline was expected. Mills are booked solid through October. A few are booked solid for the rest of the year on most major products. Others are having some trouble filling November and December, still a good many rolling days away.

An Iron Age survey of steel buyers in major manufacturing areas across the nation shows a big change in their thinking from a few weeks ago: (1) Feeling is almost general that they can now take a breather in their steel buying. (2) Conversion and premium priced material are taboo, except in special cases. (3) Inventories in a lot of plants are up to snuff, or nearly so. In a few instances inventory correction is taking place now. (4) Buying policy is generally under careful scrutiny, and some changes are being made.

To steel producers handwriting on the walls has been signalling an easier market since May, though none could name the time it would arrive.

Despite the addition of 2 to 3 million tons of new capacity, operations through the summer have ranged in the mid-nineties. In July the ingot rate averaged 93.2 pct of rated capacity, compared with 98.3 in July of 1951.

It is fairly obvious that customers haven't been pressing for steel with their old vim for some time, else mills would have been forced into higher production—despite the cost.

Now add this up: Automotive and warehouse customers together account for nearly two-fifths of all steel shipments. Both are headed for a decline.

Terrific auto production, now heading for a dip, has been a leading factor in prolonging the steel boom. Ruins of GM's Detroit Transmission plant had scarcely ceased smoldering when hold-up orders began to reach steel producers. Most stop orders do not affect steel in process.

Because of high auto production, transmission inventories were rated at only 2 days. Estimates on when production can be resumed range from 2 to 5 weeks.

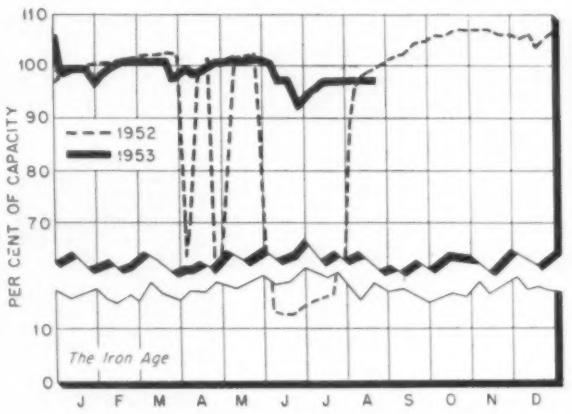
Of significance to other steel users is the fact that more steel will be available to them. This will be especially noticeable on sheets, bars.

Warehouses now hold inventories of 75 to 80 pct of what they were Sept. 1, 1949, a period of fairly high inventory when the industry started compiling figures. Of course inventories are better balanced, too. Still in the short category are some types of plates, structurals, and sheets.

Steel Operating Rates

	Week of Aug. 16	Week of Aug. 9		Week of Aug. 16	Week of Aug. 9
Pittsburgh	94.0	95.0*	Detroit	106.0	106.0*
Chicago	102.0	101.5*	Birmingham	94.0	95.5
Philadelphia	98.0	98.0	Wheeling	101.0	101.0
Valley	100.0	100.0	S. Ohio River	83.5	86.0
West	101.0	96.0*	St. Louis	103.0	103.0
Cleveland	94.0	96.0	East	99.0	107.5*
Buffalo	106.5	106.5	AGGREGATE	96.0	95.0*

Beginning Jan. 1, 1953, operations are based on annual capacity of 117,522,470 net tons.
* Revised



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Republic Cold Drawn Alloy Bars deliver all 6 . . . plus

UNIFORM MACHINABILITY

Check the properties your steel parts require . . . add the economy of uniform machinability . . . and you have the answer to production and cost problems . . . Republic Cold Drawn Alloy Steel Bars.

High-speed automatics take full advantage of the cost-cutting qualities of Republic Bars. Designers can make full use of the high strength and uniform structure of these cold drawn bars. Production men can get the ideal combination of wearability and strength out of the uniform hardenability and toughness of the alloy steel.

And . . . Republic 3-Dimension Metallurgical Service focuses the experience of our Field, Mill, and Laboratory metallurgists on your production problems for the best answer with Republic Cold Drawn Alloy Steel Bars.

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ALLOY STEEL BARS

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Markets at a Glance

Revise Extras . . . Jones & Laughlin Steel Corp. has increased size extras on c-f flat bars and shafting on widths over 6 in. by 45¢ per 100 lb. Quantity extras on 500 to 999 lb. and on 1000 to 1999 lb. were reduced 95¢ per 100 lb. J. & L. also lists a breakdown of electreating extras ranging from $3.35 to $8.50 per 100 lb. First application of electreating extras will be on fourth quarter orders.

Japanese Seek Titanium Market . . . Nippon Soda Co. of Tokyo is making its second attempt at selling titanium in the U. S. and has sent sponge samples to the U. S. Bureau of Mines for testing. Samples tested earlier failed to meet U. S. requirements. Sole U. S. distribution rights have been obtained by O'Doul Enterprises, Los Angeles.

Expand Pig Output . . . Great Lakes Steel Corp. is doubling capacity of its "A" blast furnace at its Zug Island, Detroit plant. Rebuilding and enlargement, to start next spring, will boost furnace capacity to 500,000 tons per year. Koppers Co., Freyn Div., which is handling the rebuilding job, will increase furnace height to 109 ft and hearth diam to 28 ft.. Zug Island pig iron capacity will be raised to 2 million tons.

Ore Shippers Get Wage Increase . . . Inland Steel Co. and Local 5000 of the United Steelworkers have agreed on a contract providing an 8½¢ per hour wage increase for seamen on vessels of the Inland ore fleet. The increase is retroactive to June 12, 1953.

Prices At A Glance

(cents per lb unless otherwise noted)

	This Week	Last Week	Month Ago	Year Ago
Composite Prices				
Finished Steel, base	4.634	4.634	4.634	4.376
Pig Iron (gross ton)	$56.76	$56.76	$56.76	$55.26
Scrap, No. 1 hvy. (gross ton)	$43.17	$44.42	$44.83	$42.00
Nonferrous Metals				
Aluminum, ingot	21.50	21.50	21.00	20.00
Copper, electrolytic	29.25	29.25	29.85	24.50
Lead, St. Louis	13.80	13.80	13.55	15.80
Magnesium, ingot	27.00	27.00	27.00	24.50
Nickel, electrolytic	63.08	63.08	63.08	59.58
Tin, Straits, N. Y.	83.00	78.50	79.75	$1.21½
Zinc, E. St. Louis	11.00	11.00	11.00	14.00

GM Disaster Affects Chicago . . . Fire at the General Motors plant in Detroit is reported to have had a considerable psychological effect in Chicago. Industry spokesmen believe there will be a considerable cut in automotive sheet consumption. There are also reports that pressure for steel from farm equipment manufacturers is slackening. One major steel user in the area has decided to cut back inventories by one-fifth.

IMC Against Nickel Control . . . Further plans for allocating nickel on a free-world basis are unnecessary, International Materials Conference says. IMC this week stated it will not recommend nickel quotas for the fourth quarter, because nickel availability increased by about 10 pct in a year and half. Allocations in this quarter are 36,315 metric tons.

Canada Eases Nickel Controls . . . Canada has further relaxed controls on nickel-bearing materials by removing restrictions governing end uses of these materials. Covered under the decontrol action are nickel-bearing stainless steel, low alloy steels and nickel-bearing copper and aluminum alloys. The easing of these regulations was a result of improved Canadian nickel supplies.

Lakes Fleet Sets Record . . . During July the Great Lakes fleet carried a record 14,496,711 gross tons of iron ore and also set a new monthly mark for shipments of ore, coal and grain. Lake Carriers' Assn. reported that July shipments of these three commodities totaled 23,523,690 tons, marking the first time in the history of Great Lakes shipping that the 23 million ton mark has been exceeded.

Raise Prices . . . Basic Refractories, Inc. has raised the price of its dead burned dolomite refractories, Magnefers and Syndolag, 75¢ per net ton in bulk, carload lots, f.o.b. Narlo and Bettsville, Ohio. The price increase was effective Aug. 15.

Ease Export Controls . . . Export controls have been relaxed to permit shipment of up to $500 worth of machinery parts and a wide variety of other items to western hemisphere countries without applying for individual export licenses.

May Cut Ore Freight Rates . . . Railway freight rates on imported ore, bound from Virginia ports to Great Lakes area, may be cut to a basic $2.91 per long ton. Current base rate for shipments between Newport News and Norfolk, Va. and Toledo is $3.51 per long ton. Decision on whether to adopt the freight reduction proposal suggested by the Chesapeake and Ohio Ry. and the Virginian Ry. rests with the Interstate Commerce Commission.

Drop Metal Use Report Requirement

Government will not require third quarter NPA reports on use by manufacturers of steel, copper, aluminum . . . McCoy stresses value to CMP, defense—By *R. L. Hatschek.*

Main news items in the nonferrous metals field were generated in Washington last week. Of widest interest to all metalworkers was the National Production Authority announcement that reports on use of steel, copper and aluminum will not be required for the third quarter.

Acting NPA Administrator H. B. McCoy said that the second quarter report (NPAF-1) would be the last of the series. He commented that these reports had been of great value during operation of the Controlled Materials Plan, and expressed his belief that they would considerably benefit future mobilization planning.

But, Mr. McCoy added, any future up-dating of the data would probably be done on an individual industry spot-check basis rather than from reports from all metals users.

Police Industry . . . A new aspect to the Justice Dept.'s zeal in policing the aluminum industry was pointed out by Aluminum Company of America's reply to the government's petition for a court order cancelling Alcoa's deal with Alcan.

Alcoa charged that thousands of independent contractors would lose out if it were not allowed to buy 600,000 tons of aluminum from Alcan between now and 1958. Alcoa stressed that the Canadian metal was being offered in ingot and pig form, which are unusable by the vast majority of fabricators.

The company also claimed that the deal would not impede further aluminum industry expansion and pointed out that the government is not pushing for new smelters in the industry at the present time.

May Negotiate . . . Hopes for a peaceful settlement of the labor row between American Brass Co. and International Mine, Mill & Smelter Workers Union quickened late last week. The union issued a formal statement of their desire to negotiate peacefully with the company.

Main union complaint is that Anaconda, American Brass' parent company has refused to accept the 9¢ package as a pattern, despite its acceptance by the other members of the industry's Big Four.

Produce More Copper . . . The Copper Institute's latest statistics show July 1953 production of refined copper in the U. S. to be 112,570 net tons, healthily over the 96,049-ton figure for July 1952. Mid-year total of 676,633 tons also was over the figure for the same period last year (578,957 tons). But July '53 output was slightly under the preceeding month, which hit the 124,480 ton mark.

NONFERROUS METAL PRICES

(Cents per lb except as noted)

	Aug. 12	Aug. 13	Aug. 14	Aug. 15	Aug. 17	Aug. 18
Copper, electro, Conn.	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00	28.50–30.00
Copper, Lake, delivered	30.125	30.125	30.125	30.125	30.125	30.125
Tin, Straits, New York	78.75	79.25	80.25	...	83.00	83.00*
Zinc, East St. Louis	11.00	11.00	11.00	11.00	11.00	11.00
Lead, St Louis	13.80	13.80	13.80	13.80	13.80	13.80

Note: Quotations are going prices
*Tentative

Lead and zinc continued slow and dull. Only moderate quantities of either have been changing hands, and prices are unchanged. The zinc pricing situation continues confused, is expected to remain in that condition for some time to come. Meanwhile the trade continued to worry over the effects of imported supplies of the two metals. A full-dress showdown on the problem is scheduled in Washington late this year. (See p. 79.)

Plan Expansion . . . Falconbridge Nickel Mines, Ltd., Canada's second largest nickel producer, is making preparations to double its production rate from 15,000 to 30,000 tons a year by 1960. Its enlargement program will include three new concentrators, each with a daily capacity of 1200 to 2000 tons and a substantial addition to smelting capacity.

The proposed new concentrators will have a combined capacity of about 4500 tons of ore daily, and it is possible that a fourth concentrator of undetermined capacity also may be installed. The new units will be in addition to the 2500 ton-per-day concentrator presently in use.

Production In '57 . . . Largest of the new concentrators will be installed at the Fecunis Lake Mine, with estimated ore reserves of 10 million tons averaging 3 pct combined nickel and copper. First production from this mine will be in 1957 with a full operating rate a year later.

The Hardy Mine from which some development ore has been treated will have a unit of around 1500 tons daily, and a third unit of 1200 tons daily will be in the Strathcona area and will serve two mines. In addition to the new units, Falconbridge will increase the capacity of its main concentrator.

Under the enlarged program nine companies will supply ore to the various concentrators of Falconbridge, and will include East Rim Nickel Mines, Milnet Mines, and Nickel Offsets Mines.

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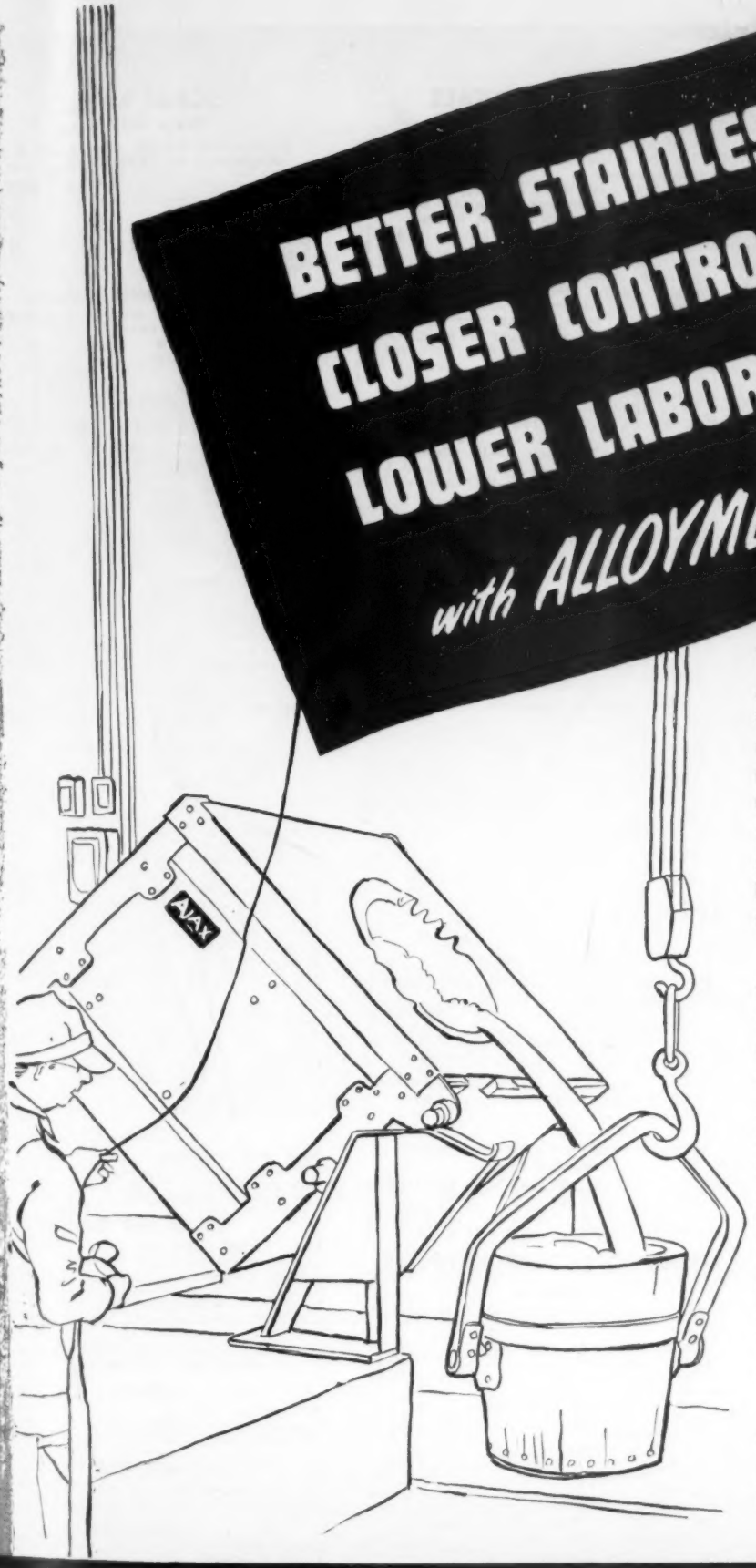
BETTER STAINLESS CLOSER CONTROL LOWER LABOR COSTS with ALLOYMET 2115



IN THE production of stainless steels, the trend is toward closer controls of analysis through the use of quality master alloy ingot. Our ALLOYMET 2115 ingot (70% Nickel—10% Chrome) is fast becoming the standard of the industry as a basic raw material in the production of stainless steels.

When ALLOYMET 2115 is used in the melt, the analysis of the finished product is never in doubt. Compare this with a heat of 18-8 scrap . . . but no, there is no comparison. Scrap—no matter how good it may be—is still an imperfect commodity that is generated; not made to order. ALLOYMET 2115, on the other hand, is a master alloy made to rigid specifications under the supervision of trained metallurgists who know the needs of the steel industry.

Steel producers are rapidly learning that to use master alloys in the place of scrap costs so very little more. Prove this by your own use.

ALTER COMPANY
Alloy Metal Division

1701 Rockingham Road, DAVENPORT, IOWA
Phone 6-2561 Teletype DV 588

Nonferrous Prices

(Effective Aug. 18, 1953)

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.136-in. and thicker, 2S, 3S, 33.9¢; 4S, 36.0¢; 52S, 38.2¢; 24S-O, 24S-OAL, 37.0¢; 75S-O, 75S-OAL, 44.7¢. 0.081-in. 2S, 3S, 35.1¢; 4S, 37.7¢; 52S, 39.9¢; 24S-O, 24S-OAL, 38.4¢; 75S-O, 75S-OAL, 46.9¢. 0.032-in. 2S, 3S, 37.0¢; 4S, 41.8¢; 24S-O, 24S-OAL, 46.9¢; 75S-O, 75S-OAL, 58.4¢.

Plate, ¼-in. and Heavier: 2S-F, 3S-F, 32.4¢; 4S-F, 34.5¢; 52S-F, 36.2¢; 61S-O, 35.6¢; 24S-O, 24S-OAL, 36.9¢; 75S-O, 75S-OAL, 44.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 37.4¢ to 82.8¢; 12 to 14, 38.2¢ to 99.0¢; 24 to 26, 40.9¢ to $1.29; 36 to 38, 48.4¢ to $1.89.

Rod, Rolled: 1.064 to 4.5-in., 2S-F, 3S-F, 43.8¢ to 37.2¢; cold-finished, 0.375 to 3.499-in., 2S-F, 3S-F, 47.6¢ to 39.3¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32-in. 59.6¢ to 47.0¢; ⅜ to 1½-in., 46.6¢ to 43.8¢; 1 9/16 to 3-in., 42.7¢ to 39.9¢. Base 5000 lb.

Drawn Wire: Coiled 0.051 to 0.374-in., 2S, 44.1¢ to 32.4¢; 52S, 53.4¢ to 39.1¢; 17S-T4, 60.1¢ to 41.8¢; 61S-T4, 53.9¢ to 41.3¢.

Extruded Tubing: Rounds, 63S-T5, OD 1¼ to 2 in., 41.6¢ to 60.7¢; 2 to 4 in., 37.7¢ to 51.1¢; 4 to 6 in., 38.2¢ to 46.6¢; 6 to 9 in., 38.7¢ to 48.8¢.

Roofing Sheet: Flat, per sheet, 0.032-in., 42¾ x 60 in., $2.838; x 96 in., $4.543; x 120 in., $5.680; x 144 in., $6.816. Coiled sheet, per lb, 0.019 in. x 28 in.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in., 66¢; 3/16 in., 68¢; ½ in., 70¢; B & S Gage 10, 71¢; 12, 75¢. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam ¼ to 0.311 in., 77¢; ½ to ¾ in., 60.5¢; 1¼ to 1.749 in., 56¢; 2½ to 5 in., 51.5¢. Other alloys higher. Base up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated: 0.10 to 0.11 lb, 3.5 in., 65.3¢; 0.22 to 0.25 lb, 5.9 in., 62.3¢; 0.50 to 0.59 lb, 8.6 in., 59.7¢; 1.8 to 2.59 lb, 19.5 in., 56.8¢; 4 to 6 lb, 28 in., 52¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, 0.049 to 0.057 in. wall thickness: OD, ¼ to 5/16 in., $1.43; 5/16 to ⅝ in., $1.29; ½ to ⅝ in., 96¢; 1 to 2 in., 79¢; 0.165 to 0.219 in. wall: OD, ⅝ to ¾ in., 64¢; 1 to 2 in., 60¢; 3 to 4 in., 59¢. Other alloys higher. Base, OD: Up to 1½ in., 10,000 lb; 1¾ to 3 in., 20,000 lb; over 3 in., 30,000 lb.

Titanium

(100,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheets and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	86½	67½	92½
Strip, CR	92½	70½	98½
Rod, bar	82½	65½	88½
Angles, HR	82½	65½	88½
Plate, HR	84½	66½	90½
Seamless Tube	115½	100½	137½
Shot, blocks		60	

Copper, Brass, Bronze

(Freight included on 500 lb)

	Sheet	Rods	Extruded Shapes
Copper	48.51		50.58
Copper, h-r	50.48	46.83	
Copper, drawn		48.08	
Low brass	45.99	45.68	
Yellow brass	42.87	42.56	
Red brass	47.11	46.80	
Naval brass	47.01	41.07	42.33
Leaded brass			39.95
Com. bronze	48.76	48.45	
Mang. bronze	50.73	44.62	46.18
Phos. bronze	70.50	70.75	
Muntz metal	44.91	40.47	41.72
Ni silver, 10 pct	54.56	59.83	62.89

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	21.50
Aluminum pig	20.00
Antimony, American, Laredo, Tex.	24.50
Beryllium copper, per lb cont'd Be	$40.00
Beryllium aluminum 5% Be, Dollars per lb contained Be	$72.75
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.00
Cobalt, 97-99% (per lb)	$2.40 to $2.47
Copper, electro, Conn. Valley	28.50 to 30.00
Copper, Lake, delivered	30.125
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$165 to $175
Lead, St. Louis	13.80
Lead, New York	14.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb.	27.00
Magnesium, sticks, 100 to 500 lb.	45.00 to 47.00
Mercury, dollars per 76-lb. flask, f.o.b. New York	$191 to $194
Nickel electro, f.o.b. N. Y. warehouse	63.08
Nickel oxide sinter, at Copper Creek, Ont., contained nickel	56.25
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$93
Silver, New York, cents per oz.	85.25
Tin, New York	83.00
Titanium, sponge	$5.00
Zinc, East St. Louis	11.00
Zinc, New York	11.25-11.83
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb, delivered carloads)

85-5-5-5 ingot	
No. 115	24.50
No. 120	23.75
No. 123	23.25
80-10-10 ingot	
No. 305	28.75
No. 315	26.50
88-10-2 ingot	
No. 210	37.50
No. 215	34.00
No. 245	29.50
Yellow ingot	
No. 405	20.75
Manganese bronze	
No. 421	25.25

Aluminum Ingot

(Cents per lb del'd, 30,000 lb and over)

95-5 aluminum-silicon alloys	
0.30 copper, max.	24.50-25.00
0.60 copper, max.	24.00-24.75
Piston alloys (No. 122 type)	22.50-23.00
No. 12 alum. (No. 2 grade)	21.75-22.50
108 alloy	22.50-23.00
195 alloy	22.50-24.00
13 alloy (0.60 copper max.)	24.00-24.75
ASX-679	22.50-22.75

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	23.75-24.00
Grade 2—92-95%	22.50-23.00
Grade 3—90-92%	21.50-22.00
Grade 4—85-90%	20.50-21.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 5000 lb lots)

Copper	
Cast, oval, 15 in. or longer	45.14
Electrodeposited	37.98
Flat rolled	45.64
Brass, 80-20	
Cast, oval, 15 in. or longer	43.515
Zinc, flat cast	20.25
Ball, anodes	18.50
Nickel, 99 pct plus	
Cast	79.50
Roller, depolarized	80.50
Cadmium	$2.15
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	94⅛

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	63
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	30.00
Nickel chloride, 375 lb drum	38.00
Silver cyanide, 100 oz lots, per oz.	75½
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drum	47.7

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	25⅝	27⅝
Yellow brass	21⅝	19⅝
Red brass	25½	24⅝
Comm. bronze	26½	25⅝
Mang. bronze	20	19¾
Brass rod ends	19¾	

Custom Smelters' Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	21½
No. 2 copper wire	20
Light copper	18½
*Refinery brass	18

* Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	23 —23½
No. 2 copper wire	20½—21
Light copper	19 —19½
No. 1 composition	18½—17
No. 1 comp. turnings	16 —16½
Rolled brass	14 —14½
Brass pipe	14 —14½
Radiators	12½

Aluminum

Mixed old cast	12½—13½
Mixed new clips	14 —14½
Mixed turnings, dry	13 —13½
Pots and pans	13 —14

Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	20½
No. 2 heavy copper and wire	18½
Light copper	16½
New type shell cuttings	18
Auto radiators (unsweated)	11
No. 1 composition	15
No. 1 composition turnings	14½
Unlined red car boxes	13
Cocks and faucets	13
Mixed heavy yellow brass	10
Old rolled brass	12
Brass pipe	14½
New soft brass clippings	16½—17½
Brass rod ends	16 —16½
No. 1 brass rod turnings	15 —16

Aluminum

Alum. pistons and struts	6½
Aluminum crankcases	9
2S aluminum clippings	13
Old sheet and utensils	9
Borings and turnings	6½
Misc. cast aluminum	9
Dural clips (24S)	9

Zinc

New zinc clippings	6½
Old zinc	4½
Zinc routings	3½
Old die cast scrap	3½

Nickel and Monel

Pure nickel clippings	100
Clean nickel turnings	85
Nickel anodes	100
Nickel rod ends	100
New Monel clippings	33
Clean Monel turnings	25
Old sheet Monel	30
Nickel silver clippings, mixed	14
Nickel silver turnings, mixed	12

Lead

Soft scrap, lead	11 —11½
Battery plates (dry)	6¼— 6½
Batteries, acid free	4.60— 4.70

Magnesium

Segregated solids	15 —16
Castings	14 —15

Miscellaneous

Block tin	60 —65
No. 1 pewter	37 —40
No. 1 auto babbitt	35 —38
Mixed common babbitt	12 —12½
Solder joints	15 —15½
Siphon tops	35
Small foundry type	15½
Monotype	14½
Linotype	13¾
Lino. and stereotype	11½
Electrotype	9
Hand picked type shells	5½
Lino. and stereo. dross	5
Electro dross	6

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Market Loses More Wind from Its Sails

Dullness afflicts most scrap centers . . . Most show declines while others await them . . . Speculate that scrap buyers may be gaging own market . . . Others sure of firming up.

Across the country the scrap market saw more wind stolen from already slack sails. Hesitancy of consumers to enter for substantial tonnages further softened markets, shaded prices in several areas and will have the effect of reducing yard intake of scrap at dealer level still more.

Whether steel scrap buyers were trying to gage the strength of demand for their own products before taking in more metallics was a speculative subject in the scrap trade. High blast furnace capacity, low pig iron demand plus heavy shipments of ore could also nick the scrap market.

Yet the trade had its cautious optimists who saw some but no drastic easing of the steelmaking rate. The mills, they said, would have to come in for much heavier shipments in the fall. Leanness of dealer stocks will then firm up prices.

Openhearth scrap in Pittsburgh edged down $1 on appraisal. Other markets that went down were Chicago, Philadelphia, New York, Cleveland, St. Louis, Boston. The rest were waiting for price drops. THE IRON AGE No. 1 steel scrap composite declined $1.25 to $43.17.

Pittsburgh—On basis of appraisal, openhearth grades of scrap were off $1 per ton this week. The market is extremely dull. Blast furnace grades also slipped down $1 as did low phos. Cast scrap is weaker. No. 1 railroad heavy melting steel held unchanged on basis of latest railroad list, creating a temporary disparity in that low phos is selling below the railroad price.

Chicago—With mill sales absent, and with broker buying off $2, and a number of brokers just not interested, scrap prices began to slip. Appraisal, bolstered by a No. 1 RR sale at $45, placed a number of grades at least $2 below prices a week previous, when they had already begun to slump by at least $1 in a number of price spreads from last month's firm market. Nickel scrap is no longer a premium item with the big buyers.

Philadelphia — Scrap market here was ominous this week. Very little was moving, and trade sources indicated it was looking more and more like a buyer's market. One large consumer is out of the market completely while extensive maintenance is going on, and another just tapped out two openhearths for lack of business. Prices are generally off about $1 per ton, except for electric furnace and low phos grades.

New York — Scrap men saw the market turning softer, slower still. New orders, possibly next week it's hoped, would provide a test for the price structure which dipped a little this week. No. 1 heavy melting slid to $35 to $36. Turnings were slightly easier. Low phos, 2 ft and under was not in demand but price was pegged lower in sympathy to the No. 1 drop. Dealer scrap was coming in slowly.

Detroit—Cutback automotive production at three GM divisions is expected to knock from 10,000 to 20,000 tons of scrap from September automotive lists. When affected suppliers are taken into consideration, scrap production from this area may be somewhat lower in forthcoming weeks. Few here predict that this will counterbalance an apparently weakening market. Market is slow now, particularly in secondary grades of heavy melting steel and bundles. Primary grades continue to maintain strength. No price changes.

Cleveland—Sale of small tonnages in this area has resulted in a market that is generally off $1. Rail specialties and cast managed to evade the drop as the most recent railroad list went at $48. A few holdups and schedule changes have been caused by the General Motors fire. No. 2 heavy melting, No. 2 bundles and turnings also went down $1 in Youngstown as softness crept into the Valley.

Birmingham—The scrap metal market continues sluggish. All steel mills and most of the foundries in the area are out of the market. Scrap is going to northern mills in dribbles on orders placed the first of the month. Brokers call prices nominal and say there are no changes because there is no buying locally. With plenty of pig iron available, brokers say the only way they can see for prices to go is downward.

St. Louis—A leading mill placed orders for between 10,000 and 15,000 tons of No. 2 heavy melting steel at $3.50 below the previous quotation. This, together with failure of other mills to come into the market, caused prices of some other items to drop. Movement has been slow, but equal to the demand for the present.

Cincinnati—Scrap prices here remained strictly nominal since there is very seldom an intermediate market between monthly buys. Dealers are still shipping on old orders and new ordering is at a standstill. Brokers and dealers generally expect this market to slip when buying is resumed.

Boston—The market here took a substantial drop and broker feeling accordingly turned more pessimistic. From $33 to $34, No. 1 heavy melting turned down to $32. No. 2 heavy melting slid to $28.25. Other grades followed the trend. Cast showed it was not at bottom when mixed cupola and stoveplate lost $1.

West Coast—Scrap collections were picking up last week with mills getting the full amount ordered from dealers. Prices remain unchanged. Machine shop turnings are piling up in Los Angeles. A major steel producer there some time ago abandoned crushed turnings for cheaper straight machine turnings. An ordnance producer meanwhile installed a crusher to get higher prices on shell billet scrap but last week was actively seeking a taker.

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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Scrap Prices

(Effective Aug. 18, 1953)

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	40.00 to 41.00
No. 1 bundles	44.00 to 45.00
No. 2 bundles	38.00 to 39.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and ms. turns.	26.00 to 27.00
Shoveling turnings	30.00 to 31.00
Cast iron borings	30.00 to 31.00
Low phos. punch'gs, plate	47.00 to 48.00
Heavy turnings	40.00 to 41.00
No. 1 RR hvy. melting	48.00 to 49.00
Scrap rails, random lgth.	48.00 to 49.00
Rails 2 ft and under	53.00 to 54.00
RR. steel wheels	50.50 to 51.50
RR. spring steel	50.50 to 51.50
RR. couplers and knuckles	50.50 to 51.50
No. 1 machinery cast.	49.00 to 50.00
Cupola cast	42.00 to 43.00
Heavy breakable cast.	40.00 to 41.00
Malleable	48.00 to 49.00

Chicago

No. 1 hvy melting	$42.00 to $43.00
No. 2 hvy. melting	37.00 to 39.00
No. 1 factory bundles	43.00 to 44.00
No. 1 dealers' bundles	42.00 to 43.00
No. 2 dealers' bundles	33.00 to 34.00
Machine shop turn.	21.00 to 23.00
Mixed bor. and turn.	24.00 to 25.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 26.00
Low phos. forge crops	48.00 to 49.00
Low phos. punch'gs, plate	45.00 to 46.00
Low phos. 3 ft and under	45.00 to 47.00
No. 1 RR. hvy. melting	44.00 to 45.00
Scrap rails, random lgth.	48.00 to 50.00
Rerolling rails	56.00 to 58.00
Rails 2 ft and under	55.00 to 56.00
Locomotive tires, cut	48.00 to 50.00
Cut bolsters & side frames	47.00 to 48.00
Angles and splice bars	49.00 to 51.00
RR. steel car axles	54.00 to 55.00
RR. couplers and knuckles	48.00 to 50.00
No. 1 machinery cast.	44.00 to 46.00
Cupola cast	40.50 to 42.00
Heavy breakable cast.	38.00 to 39.00
Cast iron brake shoes	37.00 to 39.00
Cast iron car wheels	44.00 to 46.00
Malleable	46.00 to 47.00
Stove plate	35.00 to 37.00

Philadelphia Area

No. 1 hvy. melting	$42.00 to $43.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 bundles	43.00 to 44.00
No. 2 bundles	33.50 to 34.50
Machine shop turn.	26.00 to 27.00
Mixer bor., short turn.	29.00 to 30.00
Shoveling turnings	31.00 to 32.00
Clean cast chem. borings.	38.00 to 39.00
Low phos. 5 ft and under	44.00 to 45.00
Low phos. 2 ft and under	46.00 to 47.00
Low phos. punchings	46.00 to 47.00
Elec. furnace bundles	45.00 to 46.00
Heavy turnings	41.00 to 42.00
RR. steel wheels	49.00 to 50.00
RR. spring steel	49.00 to 50.00
Rails 18 in. and under	55.00 to 56.00
Cupola cast	37.00 to 38.00
Heavy breakable cast.	41.00 to 42.00
Cast iron carwheels	45.00 to 46.00
Malleable	45.00 to 46.00
Unstripped motor blocks.	30.00 to 32.00
No. 1 machinery cast.	45.00 to 46.00
Charging box cast.	38.00 to 39.00

Cleveland

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	40.00 to 41.00
No. 1 bundles	44.00 to 45.00
No. 2 bundles	38.00 to 39.00
No. 1 busheling	44.00 to 45.00
Machine shop turn	23.00 to 24.00
Mixed bor. and turn.	27.00 to 28.00
Shoveling turnings	27.00 to 28.00
Cast iron borings	27.00 to 28.00
Low phos. 2 ft and under	46.00 to 47.00
Drop forge flashings	44.00 to 45.00
No. 1 RR hvy. melting	47.00 to 48.00
Rails 3 ft and under	54.00 to 55.00
Rails 18 in. and under	56.00 to 57.00
Railroad grate bars	40.00 to 41.00
Steel axle turnings	38.00 to 39.00
Railroad cast	49.00 to 50.00
No. 1 machinery cast.	50.00 to 51.00
Stove plate	44.00 to 45.00
Malleable	50.00 to 51.00

Youngstown

No. 1 hvy. melting	$45.00 to $46.00
No. 2 hvy. melting	41.00 to 42.00
No. 1 bundles	43.00 to 44.00
No. 2 bundles	39.00 to 40.00
Machine shop turn.	28.00 to 29.00
Shoveling turnings	32.00 to 33.00
Cast iron borings	32.00 to 33.00
Low phos. plate	48.00 to 49.00

Buffalo

No. 1 hvy. melting	$43.00 to $44.00
No. 2 hvy. melting	40.00 to 40.50
No. 1 busheling	43.00 to 44.00
No. 1 bundles	43.00 to 44.00
No. 2 bundles	38.00 to 38.50
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	31.00 to 31.50
Shoveling turnings	32.00 to 32.50
Cast iron borings	31.00 to 31.50
Low phos. plate	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	53.00 to 54.00
RR. steel wheels	53.00 to 53.50
RR. spring steel	53.00 to 53.50
RR. couplers and knuckles	53.00 to 53.50
No. 1 machinery cast.	44.00 to 45.00
No. 1 cupola cast.	40.00 to 41.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$37.00 to $38.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 bundles, openhearth	40.00 to 41.00
No. 2 bundles	30.00 to 31.00
New busheling	35.00 to 36.00
Drop forge flashings	35.00 to 36.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	20.00 to 21.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Electric furnace, bundles	40.00 to 41.00
Low phos. punch'gs, plate	40.00 to 41.00
No. 1 cupola cast	43.00
Heavy breakable cast.	33.00
Stove plate	35.00
Automotive cast.	43.00

St. Louis

No. 1 hvy. melting	$40.00 to $41.00
No. 2 hvy. melting	32.00 to 34.00
No. 2 bundled sheets	30.00 to 32.00
Machine shop turn.	17.00 to 18.00
Shoveling turnings	21.50 to 22.50
Cast iron borings	21.50 to 23.50
No. 1 RR. hvy. melting	44.00 to 45.00
Rails, random lengths	48.00 to 50.00
Rails 18 in. and under	51.00 to 53.00
Locomotive tires, uncut	44.00 to 46.00
Angles and splice bars	47.00 to 48.00
Std. steel car axles	44.00 to 46.00
RR. spring steel	47.00 to 48.00
Cupola cast	42.00 to 43.00
Hvy. breakable cast.	36.00 to 37.00
Cast iron brake shoes	40.00 to 41.00
Stove plate	34.00 to 35.00
Cast iron car wheels	43.00 to 44.00
Malleable	43.00 to 45.00
Unstripped motor blocks	34.00 to 35.00

New York

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	29.50 to 30.50
No. 2 bundles	28.00 to 29.00
Low phos. 2 ft and less	37.00 to 38.00
Machine shop turn.	18.50 to 19.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	22.50 to 23.50
Clean cast chem. borings.	28.00 to 29.00
No. 1 machinery cast.	41.00 to 42.00
Mixed yard cast.	33.00
Charging box cast.	34.00 to 35.00
Heavy breakable cast.	34.00 to 35.00
Unstripped motor blocks.	24.00 to 25.00

Birmingham

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 bundles	33.00 to 34.00
No. 2 bundles	29.00 to 30.00
No. 1 busheling	29.50 to 30.50
Machine shop turn.	23.00 to 23.50
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Electric furnace bundles	32.00 to 33.00
Bar crops and plate	39.00 to 40.00
Structural and plate, 2 ft.	36.00 to 37.00
No. 1 RR. hvy. melting	35.00 to 36.00
Scrap rails, random lgth.	41.00 to 42.00
Rerolling rails	46.00 to 47.00
Rails, 18 in. and under	45.00 to 46.00
Angles & splice bars	45.00 to 46.00
Std. steel axles	45.00 to 46.00
No. 1 cupola cast.	43.00 to 44.00
Stove plate	40.00 to 41.00
Cast iron car wheels	46.00 to 47.00
Charging box cast.	30.00 to 31.00
Heavy breakable	30.00 to 31.00
Unstripped motor blocks.	32.00 to 33.00
Mashed tin cans	17.00 to 18.00

Boston

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	28.25
No. 1 bundles	32.00
No. 2 bundles	28.25
No. 1 busheling	32.00
Elec. furnace, 3 ft & under	32.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and short turn.	21.00
Shoveling turnings	21.50 to 22.00
Clean cast chem. borings.	27.17
No. 1 machinery cast	31.00 to 32.00
Mixed cupola cast.	29.00 to 30.00
Heavy breakable cast.	30.00 to 31.00
Stove plate	25.00 to 26.00
Unstripped motor blocks.	32.00

Cincinnati

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	$41.00 to $42.00
No. 2 hvy melting	38.00 to 39.00
No. 1 bundles	41.00 to 42.00
No. 2 bundles	35.00 to 36.00
Machine shop turn.	19.00 to 20.00
Mixed bor. and turn.	23.00 to 24.00
Shoveling turnings	23.00 to 24.00
Cast iron borings	23.00 to 24.00
Low phos. 18 in. & under	47.00 to 48.00
Rails, random lengths	45.00 to 46.00
Rails, 18 in. and under	53.00 to 54.00
No. 1 cupola cast.	42.00 to 43.00
Hvy. breakable cast.	37.00 to 38.00
Drop broken cast.	48.00 to 49.00

San Francisco

No. 1 hvy. melting	$28.00
No. 2 hvy. melting	24.00
No. 1 bundles	25.00
No. 2 bundles	22.00
No. 3 bundles	18.00
Machine shop turn.	10.00
Cast iron borings	15.00
No. 1 RR. hvy. melting	28.00
No. 1 cupola cast.	$38.00 to 39.00

Los Angeles

No. 1 hvy. melting	$24.00
No. 2 hvy. melting	20.00
No. 1 bundles	23.00
No. 2 bundles	20.00
No. 3 bundles	16.00
Mach. shop turn.	8.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. fur. 1 ft and under	29.00
No. 1 RR. hvy. melting	24.00
No. 1 cupola cast.	$37.00 to 39.00

Seattle

No. 1 hvy. melting	$21.00
No. 2 hvy. melting	27.00
No. 1 bundles	28.00
No. 2 bundles	23.00
No. 1 cupola cast.	37.00
Mixed yard cast.	35.00

Hamilton Ont.

No. 1 hvy. melting	$33.00
No. 1 bundles	32.50
No. 2 bundles	32.00
Mechanical bundles	30.50
Mixed steel scrap	28.50
Bushelings	27.50
Bush., new fact. prep'd.	30.50
Bush., new fact. unprep'd.	29.50
Short steel turnings	22.50
Mixed bor. and turn.	26.50
Rails, remelting	32.50
Rails, rerolling	41.00
Cast scrap	48.00

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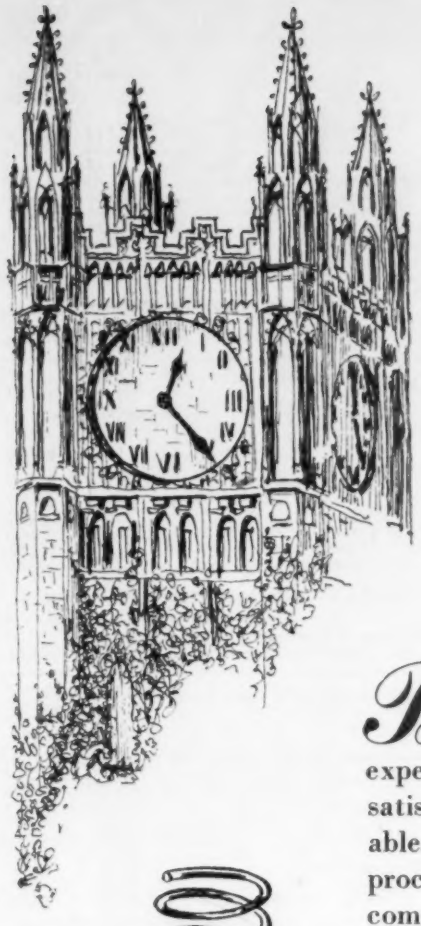
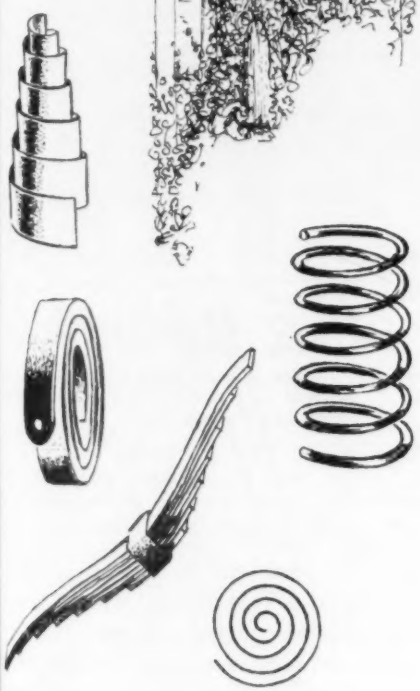


112 million minutes ago

BACK IN 1740, Benjamin Huntsman, an English clock maker near Sheffield, started experimental work to secure a more uniform and satisfactory steel for springs than was then available. As a result of his efforts, the first successful process was developed for the fusion of steel on a commercial scale that produced a relatively homogeneous ingot.

Today, individual-purpose steels and alloys are indispensable, not only for clock springs, but also for hundreds of other specialized functions. To assure an adequate tonnage of steel to meet all the requirements of industry, agriculture, construction and armament, the mills must be supplied with an unfailing flow of scrap.



For the purchase or sale of iron or steel scrap . . .

phone or write "Your Chicago Broker"

M. S. KAPLAN COMPANY

231 S. La Salle St., Chicago

Telephone ANdover 3-3900

Comparison of Prices

(Effective Aug. 18, 1953)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

	Aug. 18 1953	Aug. 11 1953	July 21 1953	Aug. 19 1952
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	3.925¢	3.925¢	3.925¢	3.775¢
Cold-rolled sheets	4.775	4.775	4.775	4.575
Galvanized sheets (10 ga.)	5.275	5.275	5.275	5.075
Hot-rolled strip	3.925	3.925	3.925	3.725
Cold-rolled strip	5.575	5.575	5.575	5.20
Plate	4.10	4.10	4.10	3.90
Plates wrought iron	9.00	9.00	9.00	9.00
Stainl's C-R strip (No. 302)	41.50	41.50	41.50	36.75*
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$8.95	$8.95	$8.95	$8.95
Tinplate, electro (0.50 lb.)	7.65	7.65	7.65	7.65
Special coated mfg. ternes	7.75	7.75	7.75	7.75
Bars and Shapes: (per pound)				
Merchant bars	4.15¢	4.15¢	4.15¢	3.90¢
Cold finished bars	5.20	5.20	5.20	4.925
Alloy bars	4.875	4.875	4.875	4.675
Structural shapes	4.10	4.10	4.10	3.85
Stainless bars (No. 302)	35.50	35.50	35.50	31.50*
Wrought iron bars	10.05	10.05	10.05	10.05
Wire: (per pound)				
Bright wire	5.525¢	5.525¢	5.525¢	5.225¢
Rails: (per 100 lb.)				
Heavy rails	$4.325	$4.325	$4.325	$3.775
Light rails	5.20	5.20	5.20	4.25
Semifinished Steel: (per net ton)				
Rerolling billets	$62.00	$62.00	$62.00	$59.00
Slabs, rerolling	62.00	62.00	62.00	59.00
Forging billets	75.50	75.50	75.50	70.50
Alloy blooms, billets, slabs	82.00	82.00	82.00	76.00
Wire Rod and Skelp: (per pound)				
Wire rods	4.525¢	4.525¢	4.525¢	4.325¢
Skelp	3.75	3.75	3.75	3.55
Finished Steel Composite: (per pound)				
Base price	4.634¢	4.634¢	4.634¢	4.376¢

* Add 4.7 pct.

	Aug. 18 1953	Aug. 11 1953	July 21 1953	Aug. 19 1952
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$62.19	$62.19	$62.19	$60.69
Foundry, Valley	56.50	56.50	56.50	55.00
Foundry, Southern, Cin'ti	60.43	60.43	60.43	58.93
Foundry, Birmingham	52.88	52.88	52.88	51.38
Foundry, Chicago†	56.50	56.50	56.50	55.00
Basic del'd, Philadelphia	61.27	61.27	61.27	59.77
Basic, Valley furnace	56.00	56.00	56.00	54.50
Malleable, Chicago†	56.50	56.50	56.50	55.00
Malleable, Valley	56.50	56.50	56.50	55.00
Ferromanganese‡, cents per lb.	10.00¢	10.00¢	10.00¢	9.06¢
Pig Iron Composite: (per gross ton)				
Pig iron	$56.76	$56.76	$56.76	$55.26
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	*$44.50*	$45.50	$47.50	$43.00*
No. 1 steel, Phila. area	*42.50*	44.25	43.50	41.50*
No. 1 steel, Chicago	*42.50*	43.50	43.50	41.50*
No. 1 bundles, Detroit	40.50	40.50	40.50	41.25*
Low phos., Youngstown	48.50	48.50	48.50	46.50*
No. 1 mach'y cast, Pittsburgh	49.50	49.50	49.50	49.00
No. 1 mach'y cast, Philadel'a	*45.50*	46.50	45.50	46.00
No. 1 mach'y cast, Chicago	*45.00*	46.50	45.50	45.50
Steel Scrap Composite: (per gross ton)				
No. 1 heavy melting scrap	*$43.17*	$44.42	$44.83	$42.00
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.75	$14.75	$14.75	$14.75
Foundry coke, prompt	17.25	17.25	17.25	17.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	29.25‡	29.25‡	29.875‡	24.50
Copper, Lake, Conn.	30.125	30.125	30.125	24.625
Tin, Straits, New York	83.00†	78.50*	78.25	91.25*
Zinc, East St. Louis	11.00	11.00	11.00	14.00
Lead, St. Louis	13.80	13.80	13.55	15.80
Aluminum, virgin ingot	21.50	21.50	21.00	20.00
Nickel, electrolytic	63.08	63.08	63.08	59.58
Magnesium, ingot	27.00	27.00	27.00	24.50
Antimony, Laredo, Tex.	34.50	34.50	34.50	39.00

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Bethlehem *B3*	58.00	58.50	59.00	59.50	.....
Birmingham *R3*	52.38	52.88	.....	.....	.....
Birmingham *W9*	52.38	52.88	.....	.....	.....
Birmingham *S5*	52.38	52.88	.....	.....	.....
Buffalo *R3*	56.00	56.50	57.00	.....	.....
Buffalo *H1*	56.00	56.50	57.00	.....	.....
Buffalo *W6*	56.00	56.50	57.00	.....	.....
Chicago *I4*	56.00	56.50	56.50	57.00	.....
Cleveland *A5*	56.00	56.50	56.50	57.00	61.00
Cleveland *R3*	56.00	56.50	56.50	.....	.....
Daingerfield *L3*	52.50	52.50	52.50	.....	.....
Duluth *I4*	56.00	56.50	56.50	57.00	.....
Erie *I4*	56.00	56.50	56.50	.....	.....
Everett *M6*	.....	63.25	63.75	57.00	.....
Fontana *K1*	62.00	62.50	.....	.....	.....
Geneva, Utah *C7*	56.00	56.50	56.50	57.00	61.00
Granite City *G2*	57.90	58.40	58.90	.....	.....
Hubbard *Y1*	.....	.....	56.50	.....	.....
Minnequa *C6*	58.00	59.00	59.00	.....	.....
Monessen *P6*	56.00	.....	.....	.....	.....
Neville Isl. *P4*	56.00	56.50	56.50	.....	.....
Pittsburgh *U1*	56.00	.....	.....	57.00	.....
Sharpsville *S3*	56.00	56.50	56.50	57.00	.....
Steelton *B3*	58.00	58.50	59.00	59.50	64.00
Swedeland *A2*	60.00	60.50	61.00	61.50	.....
Toledo *I4*	56.00	56.50	56.50	57.00	.....
Troy, N. Y. *R3*	58.00	58.50	59.00	59.50	64.00
Youngstown *Y1*	.....	.....	56.50	57.00	.....
N. Tonawanda *T1*	.....	56.50	57.00	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct), 50¢ per ton for each 0.5C pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus, content 0.70 and over.

Silvery Iron: Buffalo, *H1*, $68.25; Jackson, *J1*, *G1*, $67.00. Add $1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. Add $1 per ton for 0.75 pct or more phosphorus. Manganese as above Bessemer ferrosilicon prices are $1 over comparable silvery iron.

STAINLESS STEELS

Base price cents per lb., f.o.b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	16.25	17.25	18.75	18.25	28.00	22.75	24.50	14.00	.....	14.25
Slabs, billets, rerolling	20.50	22.75	24.75	23.75	36.25	29.50	32.25	18.25	.....	18.50
Forg. discs, die blocks, rings	38.50	38.50	41.50	40.50	60.00	45.50	50.75	31.00	31.75	31.75
Billets, forging	29.50	29.75	32.25	31.00	46.50-46.75	35.25	39.50	24.00	24.50	24.50
Bars, wires, structurals	35.25	35.50	38.25	37.25	55.50	42.00	46.75	28.75	29.25	29.25
Plates	37.25-37.50	37.50	39.75	39.75	59.00	45.75-46.00	51.25	30.00	30.50-31.00	30.50
Sheets	46.25	46.50	48.75	48.75	64.50	55.50	60.75	40.75	41.25	43.50
Strip, hot-rolled	29.75	32.00	36.75	34.25	55.00	42.00	46.50	26.25	.....	27.00
Strip, cold-rolled	38.25-38.50	41.50	45.50	43.75	66.50	54.50	59.25	34.25	41.25	34.75

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; McKeesport, Pa., *U1*; Washington, Pa., *W2*; (type 316 add 4.5¢) *J2*; Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*; Ft. Wayne, *J4*; Lockport, N. Y., *R4*.

Strip: Midland, Pa., *C11*; Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa. *W2*; (type 316 add 4.5¢); W. Leechburg, Pa., *A3*; Bridgeville, Pa., *U2*; Detroit, *M2*; Canton-Massillon, O., *R3*; Middletown, O., *A7*; Harrison, N. J., *D3*; Youngstown, *C5*; Lockport, N. Y., *S4*; Sharon, Pa., *S1* (type 301 add ¼¢); Butler, Pa., *A7*; Wallingford, Conn., *W1*.

Bars: Baltimore, *A7*; Duquesne, Pa., *U1*; Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1*, *F1*; Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A3*; Massillon, O., *R3*; Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A3*; Waukegan, *A5*; Lockport, N. Y., *S4*; Canton, O., *T5*; Ft. Wayne, *J4*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*; Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*.

Plates: Brackenridge, Pa., *A3*; Butler, Pa., *A7*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind., *I2*; Lockport, N. Y., *S4*; Middletown, *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R3*.

Forged discs, die blocks, rings: Pittsburgh, *C11*; Syracuse, *C11*; Ferndale, Mich., *A3*; Washington, Pa., *J2*.

Forging billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R3*; Watervliet, *A3*; Pittsburgh, Chicago, *U1*; Syracuse, *C11*.

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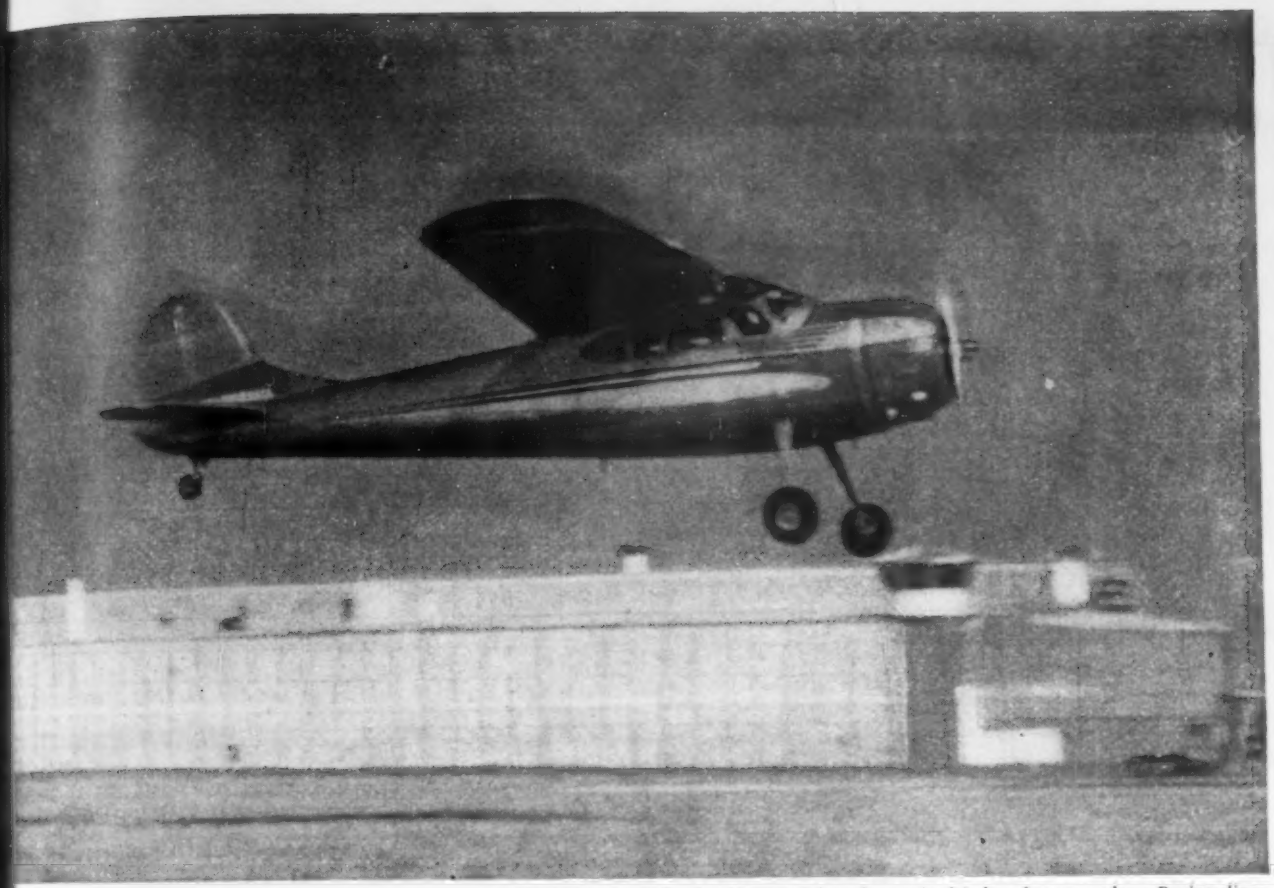

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3.2A

Assignments like these more than justify the emphasis which Jacobs, like all Barium companies, places on top-flight engineering. For Barium believes you've got to have good design if you want good products.

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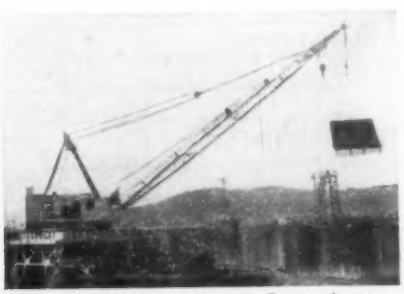
DOWN THE SUSQUEHANNA en route to James McWilliams Blue Line, Inc., N. Y., goes a new 20,000-barrel steel tanker barge made by Barium's Wiley Manufacturing Company, Port Deposit, Maryland.



SHOULDERING THE LOAD at Oregon's new McNary Dam on the Columbia River 190 miles east of Portland is this husky 70-ton Whirley crane made by Barium's Clyde Iron Works, Duluth, Minnesota.

NEW MAGNESIUM WINGS for Lockheed's F-80 jet, now under service flight test. Designed by Barium's East Coast Aeronautics, Inc., Pelham Manor, N. Y., they have fewer parts, carry more fuel.

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IRON AGE

STEEL PRICES

(Effective Aug. 18, 1953)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		INGOTS		BILLETS, BLOOMS, SLABS			PIPE SKELP	PIL-ING	SHAPES STRUCTURALS		STRIP			
		Carbon Forging Net Ton	Alloy Net Ton	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton		Sheet Steel	Carbon	Hi Str. Low Alloy	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy
EAST	Bethlehem, Pa.					$82.00 *B3*			4.15 *B3*	6.20 *B3*				
	Buffalo N. Y.			$62.00 *B3*	$75.50 *B3, R3*	$82.00 *B3, R3*		4.925 *B3*	4.15 *B3*	6.20 *B3*	3.925 *B3, R3*	5.45 *B3*	6.00 *B3*	8.025
	Claymont, Del.													
	Coatesville, Pa.													
	Conshohocken, Pa.										4.325 *A2*		6.20 *A2*	
	Harrisburg, Pa.													
	Hartford, Conn.													
	Johnstown, Pa.			$62.00 *B3*	$75.50 *B3*	$82.00 *B3*			4.15 *B3*	6.20 *B3*				
	Morrisville, Pa.													
	New Haven, Conn.											5.95 *A5* 6.20 *D1*		
	Phoenixville, Pa.								4.95 *P2*					
	Sparrows Pt., Md.										3.925 *B3*	5.45 *B3*	6.00 *B3*	8.025
	Worcester, Mass.													
	Trenton, N. J.													
MIDDLE WEST	Alton, Ill.										4.20 *L1*			
	Ashland, Ky.										3.925 *A7*			
	Canton-Massillon, Ohio				$75.50 *R3*	$82.00 *R3*								
	Chicago, Ill.			$62.00 *U1*	$75.50 *R3, U1,W8*	$82.00 *U1, W8,R3*		4.925 *U1*	4.10 *U1, W8*	6.175 *U1*	3.925 *A1, W8*	5.95 *A1*	5.95 *R3*	
	Sterling, Ill.													
	Cleveland, Ohio				$75.50 *R3*							5.45 *A5, J3*		7.80 *J3*
	Detroit, Mich.		$63.00 *R5*		$78.50 *R5*	$85.00 *R5*					4.225 *G3* 4.40 *M2*	5.65 *G3,M2* 5.95 *D1* 6.05 *D2*	6.50 *G3*	7.90 *D2* 8.50 *G3*
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana			$62.00 *U1*	$75.50 *U1*	$82.00 *U1, Y1*		4.925 *I3*	4.10 *I3, U1*	6.175 *U1, I3*	3.925 *I3, U1, Y1*	5.70 *I3*	5.95 *U1, I3* 6.45 *Y1*	
	Granite City, Ill.													
	Kokomo, Ind.													
	Middletown, Ohio											5.45 *A7*		
	Niles, Ohio Sharon, Pa.										4.225 *S1*	5.80 *S1*	5.95 *S1*	7.85 *S1*
	Pittsburgh, Pa. Midland, Pa.	$59.00 *U1*	$62.00 *U1*	$62.00 *U1* $62.50 *J3*	$75.50 *J3, U1*	$82.00 *U1*	3.75 *U1* 3.85 *J3*	4.925 *U1*	4.10 *J3, U1*	6.175 *J3, U1*	4.425 *S7,S9*	5.45 *B4, J3* 6.15 *S7*		7.80 *J3*
	Portsmouth Ohio													
	Weirton, Wheeling Follanabee, W. Va.								4.35 *W3*		4.025 *W3*	5.45 *F3, W3*	6.30 *W3*	
	Youngstown, Ohio					$82.00 *Y1*	3.75 *R3, U1*		4.10 *Y1*		3.925 *R3, U1, Y1*	5.45 *R3, Y1*	5.95 *U1, R3* 6.45 *Y1*	7.80 *R3* 8.30 *Y1*
WEST	Fontana, Cal.	$86.00 *K1*	$88.00 *K1*	$81.00 *K1*	$94.50 *K1*	$101.00 *K1*			4.75 *K1*	6.825 *K1*	4.70 *K1*	7.35 *K1*	7.85 *K1*	
	Geneva, Utah				$75.50 *C7*				4.10 *C7*	6.175 *C7*				
	Kansas City, Mo.								4.80 *S2*	6.875 *S2*	4.625 *S2*		6.65 *S2*	
	Los Angeles, Torrance, Cal.				$94.50 *B2*	$102.00 *B2*			4.80 *B2, C7*	6.85 *B2*	4.675 *B2, C7*			
	Minnequa, Colo.								4.55 *C6*		4.025 *C6*			
	San Francisco, Niles, Pittsburg, Cal.				$94.50 *B2*				4.75 *B2* 4.91 *P9*	6.80 *B2*	4.675 *B2, C7*			
	Seattle, Wash.				$94.50 *B2, S11*				4.85 *B2*	6.90 *B2*				
SOUTH	Atlanta, Ga.										4.475 *A8*			
	Fairfield, Ala. Alabama City, Ala.			$62.00 *T2*	$75.50 *T2*				4.10 *R3, T2*	6.175 *T2*	3.925 *R3, T2*		5.95 *T2*	
	Houston, Texas				$85.50 *S2*	$92.00 *S2*			4.60 *S2*		4.425 *S2*			

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

STEEL PRICES

(Effective Aug. 18, 1953)

SHEETS									WIRE ROD	TINPLATE†		BLACK PLATE	
Hot-rolled 18 ga. & hvyr.	Cold-rolled	Galvanized 10 ga.	Enameling 12 ga.	Long Terne 10 ga.	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.	Hot-rolled 19 ga.		Cokes* 1.25 lb. base box	Electro* 0.25-lb. base box	Hollowware Enameling 29 ga.	
													Bethlehem, Pa.
3.925 *B3*	4.775 *B3*				5.90 *B3*	7.225 *B3*			4.525 *W6*				Buffalo, N. Y.
										† Special coated mfg terne deduct 95¢ from 1.25-lb coke base box price. Can-making quality blackplate 55 to 128 lb deduct $2.20 from 1.25-lb coke base box. * COKES: 1.50-lb add 25¢. ELECTRO: 0.50-lb add 25¢; 0.75-lb add 65¢.			Claymont, Del.
													Coatesville, Pa.
3.925 *A2*					6.15 *A2*								Conshohocken, Pa.
													Harrisburg, Pa.
													Hartford, Conn.
									4.525 *B3*				Johnstown, Pa.
3.925 *U1*	4.875 *U1*									$8.80 *U1*	$7.50 *U1*	6.60 *U1*	Morrisville, Pa.
													New Haven, Conn.
													Phoenixville, Pa.
3.925 *B3*	4.775 *B3*	5.275 *B3*			5.90 *B3*	7.225 *B3*	8.075 *B3*		4.625 *B3*	$8.80 *B3*	$7.50 *B3*		Sparrows Pt., Md.
									4.825 *A5*				Worcester, Mass.
													Trenton, N. J.
									4.70 *L1*				Alton, Ill.
3.925 *A7*		5.275 *A7*	5.175 *A7*										Ashland, Ky.
		5.275 *R3*											Canton-Massillon, Ohio
3.925 *A1, W8*					5.90 *U1*				4.525 *A5, N4, R3*				Chicago, Ill.
									4.625 *N4*				Sterling, Ill.
3.925 *J3, R3*	4.775 *J3, R3*		5.175 *R3*		5.90 *J3, R3*	7.225 *J3, R3*			4.525 *A5*				Cleveland, Ohio
4.125 *G3*	4.975 *G3*				6.375 *G3*	7.675 *G3*							Detroit, Mich.
													Duluth, Minn.
3.925 *I3, U1, Y1*	4.775 *I3, U1, Y1*	5.275 *U1* 5.325 *I3*	5.175 *I3, U1*	5.675 *U1*	5.90 *U1, I3* 6.40 *Y1*	7.225 *U1* 7.725 *Y1*				$8.70 *I3, U1, Y1*	$7.40 *I3, U1*	6.10 *U1, Y1*	Gary, Ind. Harbor, Indiana
		5.475 *G2*	5.875 *G2*								$7.60 *G2*	6.30 *G2*	Granite City, Ill.
		5.375 *C9*											Kokomo, Ind.
	4.775 *A7*		5.175 *A7*	5.675 *A7*									Middletown, Ohio
4.225 *S1*				5.45 *S1*	5.90 *S1*						$7.40 *R3*		Niles Ohio Sharon, Pa.
3.925 *J3, U1, P6*	4.775 *J3, U1*	5.275 *U1*	5.175 *U1*		5.90 *J3, U1*	7.225 *J3, U1*	7.925 *U1*		4.525 *A5* 4.725 *P6*	$8.70 *J3, U1*	$7.40 *J3, U1*	6.10 *U1*	Pittsburgh Pa. Midland, Pa.
									4.725 *D1*				Portsmouth, Ohio
3.925 *W3, W5*	4.775 *W3, W5*	5.275 *W3, W5*		5.675 *W3, W5*		7.475 *W3*				$8.70 *W3, W5*	$7.40 *W3, W5*	6.55 *W5*	Weirton, Wheeling, Follansbee, W. Va.
3.925 *R3, U1, Y1*	4.775 *R3, Y1*				5.90 *U1, R3* 6.40 *Y1*	7.225 *R3* 7.725 *Y1*			4.525 *Y1*	$8.70 *R3*			Youngstown, Ohio
4.70 *K1*	5.875 *K1*				7.00 *K1*	8.275 *K1*			5.325 *K1*				Fontana, Cal.
3.825 *C7*													Geneva, Utah
								4.775 *C6*	4.865 *S2*				Kansas City, Mo.
3.625 *C7*		6.025 *C7*						5.325 *B2*					Los Angeles, Torrance, Cal.
									4.775 *C6*				Minnequa, Colo.
3.625 *C7*	5.725 *C7*	6.025 *C7*							5.175 *C7*	$9.45 *C7*	$8.15 *C7*		San Francisco, Niles Pittsburg, Cal.
													Seattle, Wash.
													Atlanta, Ga.
3.925 *R3, T2*	4.775 *T2*	5.275 *R3, T2*			5.90 *T2*			5.125 *T2* 5.225 *R3*	4.525 *T2, R3*	$8.80 *T2*	$7.50 *T2*		Fairfield Ala. Alabama City, Ala.
4.425 *S2*									4.925 *S2*				Houston, Texas

STEEL PRICES

(Effective Aug. 18, 1958)

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				4.875 *B3*	6.325 *B3*	6.225 *B3*					
	Buffalo, N. Y.	4.15 *B3,R3*	4.15 *B3, R3*	5.25 *B5*	4.875 *B3,R3*	6.325 *R3* 6.325 *B5*	6.225 *B3*	4.10 *B3*			6.25 *B3*	5.525 *W6*
	Claymont, Del.							4.55 *C4*		5.65 *C4*		
	Coatesville, Pa.							4.35 *L4*		5.75 *L4*		
	Conshohocken, Pa.							4.55 *A2*	5.15 *A2*		6.50 *A2*	
	Harrisburg, Pa.							6.50 *C3*				
	Hartford, Conn.			5.75 *R3*		6.775 *R3*						
	Johnstown, Pa.	4.15 *B3*	4.15 *B3*		4.875 *B3*		6.225 *B3*	4.10 *B3*		5.55 *B3*	6.25 *B3*	5.525 *B3*
	Newark, N. J.			5.65 *W10*		6.65 *W10*						
	New Haven, Conn.											
	Camden, N. J.					6.50 *P10*						
	Putnam, Conn.			5.75 *W10*								
	Sparrows Pt., Md.		4.15 *B3*					4.10 *B3*		5.55 *B3*	6.25 *B3*	5.625 *B3*
	Palmer, Worcester, Mansfield, Mass.			5.75 *B5*		6.775 *B5*						5.825 *A5, W6*
	Readville, Mass.			5.75 *C14*								
MIDDLE WEST	Alton, Ill.											
	Ashland, Ky.							4.10 *A7*				
	Canton-Massillon, Ohio	4.15 *R3*		5.20 *R2,R3*	4.875 *R3*	6.325 *R2,R3*						
	Chicago, Ill.	4.15 *R3, U1, N4, W8*	4.15 *R3,N4* 4.90 *N4*	5.20 *A5,W10, W8,B5 ,L2*	4.875 *U1, W8,R3*	6.325 *A5,W8, W10,L2,R3, B5*		4.10 *U1,W8*	5.15 *U1*	5.55 *U1*	6.25 *U1*	5.525 *A5, R3,N4* 5.625 *W7*
	Cleveland, Ohio	4.15 *R3*	4.15 *R3*	5.20 *A5,C13*		6.325 *A5,C13*		4.10 *J3,R3*	5.15 *J3*		6.25 *J3*	5.525 *A5, R3,C13*
	Detroit, Mich.	4.30 *R5* 4.50 *G3*		5.35 *R5,P8* 5.40 *B5* 5.45 *P3*	5.025 *R5* 5.225 *G3*	6.475 *R5,P8* 6.525 *B5,P3*	6.875 *G3*	4.65 *G3*			7.10 *G3*	
	Duluth, Minn.											5.525 *A5*
	Gary Ind. Harbor Crawfordsville, Indiana	4.15 *I3, U1, Y1*	4.15 *I3, U1, Y1*	5.20 *R3*	4.875 *I3, U1, Y1*	6.325 *R3,M5*	6.225 *U1,I3* 6.725 *Y1*	4.10 *I3, U1, Y1*	5.15 *I3*	5.55 *U1*	6.25 *U1,I3* 6.75 *Y1*	5.625 *M4*
	Granite City, Ill.							4.60 *G2*				
	Kokomo, Ind.											5.625 *C9*
	Sterling, Ill.	4.25 *N4*	4.25 *N4*									5.625 *N4*
	Niles, Ohio Sharon, Pa.							4.10 *S1*		5.70 *S1*	6.25 *S1*	
	Pittsburgh, Pa. Midland, Pa.	4.15 *J3, U1*	4.15 *J3, U1*	5.20 *A5, J3, W10,R3*	4.875 *U1*	6.325 *A5, W10*	6.225 *J3, U1*	4.10 *J3, U1*	5.15 *U1*	5.55 *U1*	6.25 *J3, U1*	5.525 *A5,J3, P6*
	Portsmouth, Ohio											5.725 *D1*
	Weirton, Wheeling, Follansbee, W. Va.	4.30 *W3*						4.40 *W3*				
	Youngstown, Ohio	4.15 *R3, U1, Y1*	4.15 *R3, U1, Y1*	5.20 *Y1*	4.875 *U1, Y1*		6.225 *U1* 6.725 *Y1*	4.10 *R3, U1, Y1*			6.75 *Y1*	5.525 *Y1*
WEST	Fontana, Cal.	4.85 *K1*	4.85 *K1*		5.925 *K1*		7.475 *K1*	4.75 *K1*		6.60 *K1*	6.95 *K1*	
	Genoa, Utah							4.10 *C7*			6.25 *C7*	
	Kansas City, Mo.	4.85 *S2*	4.85 *S2*		5.575 *S2*		6.925 *S2*					6.125 *S2*
	Los Angeles, Torrance, Cal.	4.85 *B2,C7*	4.85 *B2,C7*	6.65 *R3*	5.925 *B2*		6.925 *B2*					
	Minnequa, Colo.	4.60 *C6*	4.75 *C6*					4.95 *C6*				5.775 *C6*
	San Francisco, Niles, Pittsburg, Cal.	4.85 *C7,P9* 4.90 *B2*	4.85 *C7,P9* 4.90 *B2*				6.975 *B2*					6.475 *C7*
	Seattle, Wash.	4.90 *B2*	4.90 *B2,S11*				6.975 *B2*	5.00 *B2*			7.15 *B2*	
SOUTH	Atlanta, Ga.	4.45 *A8*	4.45 *A8*									5.775 *A8*
	Fairfield, Ala. Alabama City, Ala.	4.15 *R3,T2*	4.15 *R3,T2*				6.225 *T2*	4.10 *R3,T2*			6.25 *T2*	5.525 *R3, T2*
	Houston, Texas Ft. Worth, Texas	4.65 *S2*	4.65 *S2*		5.375 *S2*			4.60 *S2*				5.925 *S2*

UNIVERSITY OF MICHIGAN LIBRARIES

Steel Prices

(Effective Aug. 18, 1953)

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angell Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, O.
A8 Atlantic Steel Co., Atlanta, Ga.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Cold Metal Products Co., Youngstown
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia-Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Glassport, Pa.
C11 Crucible Steel Co. of America, New York
C12 Cumberland Steel Co., Cumberland, Md.
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.

D1 Detroit Steel Corp., Detroit
D2 Detroit Tube & Steel Div., Detroit
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimmons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G1 Globe Iron Co., Jackson, O.
G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.
M5 Monarch Steel Co., Inc., Hammond, Ind.
M6 Mystic Iron Works, Everett, Mass.

N1 National Supply Co., Pittsburgh
N2 National Tube Co., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N5 Newport Steel Corp., Newport, Ky.

O1 Oliver Iron & Steel Co., Pittsburgh

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div. Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Rotary Electric Steel Co., Detroit

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Corp., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw & Steel Co., Fitchburg, Mass.
S5 Sloss-Sheffield Steel & Iron Co., Birmingham
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Corp., Carnegie, Pa.
S10 Sweet's Steel Co., Williamsport, Pa.
S11 Seidelhuber Steel Rolling Mills, Seattle

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T6 Tremont Nail Co., Wareham, Mass.
T7 Texas Steel Co., Fort Worth

U1 United States Steel Co., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Co., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh

Y1 Youngstown Sheet & Tube Co., Youngstown

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T. & C.																						
Sparrows Pt. *B3*	24.25	8.0	27.25	12.0	29.75	16.5	32.25	16.5	32.75	17.5	33.25	18.0	34.75	18.0	.....	.....	.....	.....	.....	.....	.....	.....
Youngstown *R3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	.....	.....	.....	.....	.....	.....	.....	.....
Fontana *K1*	13.25	+2.0	16.25	1.0	18.75	4.5	21.25	5.5	21.75	6.5	22.25	7.0	23.75	7.0	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh *J3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Alton, Ill. *L1*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sharon *M3*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh *N1*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Wheeling *W5*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	.....	.....	.....	.....	.....	.....	.....	.....
Wheatland *W4*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	.....	.....	.....	.....	.....	.....	.....	.....
Youngstown *Y1*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
Indiana Harbor *Y1*	25.25	9.0	28.25	13.0	30.75	16.5	33.25	17.5	33.75	18.5	34.25	19.0	35.75	19.0	.....	.....	.....	.....	.....	.....	.....	.....
Lorain *N2*	26.25	10.0	29.25	14.0	31.75	17.5	34.25	18.5	34.75	19.5	35.25	20.0	36.75	20.0	15.75	0.0	19.75	2.5	22.25	5.0	23.75	6.5
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	27.75	13.0	31.75	17.0	33.75	20.5	34.25	19.5	34.75	20.5	35.25	21.0	35.75	20.0	.....	.....	.....	.....	.....	.....	.....	.....
Youngstown *R3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	.....	.....	.....	.....	.....	.....	.....	.....
Fontana *K1*	16.75	.....	20.75	.....	22.75	.....	23.25	.....	23.75	.....	24.25	.....	24.75	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh *J3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Alton, Ill. *L1*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sharon *M3*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	.....	.....	.....	.....	.....	.....	.....	.....
Pittsburgh *N1*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Wheeling *W5*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	.....	.....	.....	.....	.....	.....	.....	.....
Wheatland *W4*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	.....	.....	.....	.....	.....	.....	.....	.....
Youngstown *Y1*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75
Indiana Harbor *Y1*	28.75	14.0	32.75	18.0	34.75	21.5	35.25	20.5	35.75	21.5	36.25	22.0	36.75	21.0	.....	.....	.....	.....	.....	.....	.....	.....
Lorain *N2*	29.75	15.0	33.75	19.0	35.75	22.5	36.25	21.5	36.75	22.5	37.25	23.0	37.75	22.0	16.25	0.75	20.75	3.75	23.75	6.75	28.75	9.75

Galvanized discounts based on zinc, at 11¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., ½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only buttweld and seamless, 2¼ pts. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 4½ pts. higher discount. Buttweld jobbers' discount, 5 pct. East St. Louis zinc price now 11.0¢.

Steel Prices

(Effective Aug. 18, 1953)

CLAD STEEL

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct.		
Coatesville, Pa. *L4*	*32.7	
Washington, Pa. *I2*		
Claymont, Del. *C4*		32.50
New Castle, Ind. *I2*		
Nickel-carbon		
10 pct. Coatesville, Pa. *L4*	37.5	
Inconel-carbon		
10 pct. Coatesville, Pa. *L4*	46.10	
Monel-carbon		
10 pct. Coatesville, Pa. *L4*	38.90	
Aluminized steel sheets, hot dip, Butler, Pa., *A7*		

* Includes annealing and pickling, sandblasting.

CAST IRON WATER PIPE

	Per Net Ton
6 to 24-in., del'd Chicago	$110.30 to $113.80
6 to 24-in., del'd N.Y.	113.50 to 114.50
6 to 24-in., Birmingham	96.50 to 101.00

6-in. and larger f.o.b. cars, San Francisco, Los Angeles, for all rail shipments: rail and water shipments less ..... $128.00 to $130.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

ELECTRICAL SHEETS

22 Ga. H-R cut length F.o.b. Mill Cents Per Lb.	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
Beech Bottom *W5*	7.85	8.35	9.60	10.40	10.95	11.50	12.20
Brackenridge *A3*	7.85	8.35	9.60	10.40	10.95	.....	12.20
Granite City *G2*	7.85	8.55	9.80	.....	.....	.....	.....
Ind. Harbor *I3*	7.85	8.35	9.60	.....	.....	.....	.....
Mansfield *E2*	7.85	8.35	9.60	10.40	.....	.....	.....
Newport, Ky. *N5*	7.85	8.35	9.60	10.40	10.95	.....	.....
Niles, O. *N3*	7.85	8.35	.....	.....	.....	.....	.....
Vandergrift *U1*	7.85	8.35	9.60	10.40	10.95	11.50	12.20
Warren, O. *R3*	7.85	8.35	9.60	.....	.....	.....	.....
Zanesville *A7*	7.85	8.35	9.60	10.40	10.95	11.50	12.20

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.66
18	4	1	—	5	2.34
18	4	2	—	—	1.82
1.5	4	1.5	8	—	.895
6	4	2	6	—	1.065

High-carbon chromium ..... .70

Oil hardened manganese ..... .39

Special carbon ..... .355

Extra carbon ..... .30

Regular carbon ..... .25

Warehouse prices on and east of Mississippi are 3.5¢ per lb. higher. West of Mississippi, 5.5¢ higher.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Col	Woven Wire Fence 9–15½ ga. Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Twisted Barbless Wire Col	Galv. Barbed Wire Col	Merch. Wire Ann'ld ¢/lb.	Merch. Wire* Galv. ¢/lb.
Alabama City *R3*	131	140	...	149		153	6.675	7.075
Aliquippa, Pa. *J3*	131	143				150	6.675	7.29
Atlanta *A8*								
Bartonville *K2*								
Buffalo *W6*								
Chicago, Ill. *N4*	131	143	...	149	156	156	6.675	7.225
Cleveland *A6*								
Cleveland *A5*							6.675	
Crawfrdsvl. *M4*	133	145	...	151		153	6.775	7.325
Donora, Pa. *A5*	131	140	...	149		153	6.675	7.075
Duluth *A5*	131	140	145	149		153	6.675	7.075
Fairfield, Ala. *T2*	131	140	...	149		153	6.675	7.075
Galveston *D4*	139							
Houston *S2*	139	151				164	7.075	7.625
Johnstn., Pa., *B3*	131	143	145	...	156	156	6.675	7.225
Joliet, Ill., *A5*	131	140	...	149	...	153	6.675	7.075
Kokomo, Ind. *C9*	133	142	...	151	...	155	6.775	7.175
Los Angeles *B2*							7.625	
Kansas City *S2*	143	155	...	161	...	168	7.275	7.825
Minnequa *C6*	136	...	145	154	162	162	6.925	7.325
Monessen *P6*	131	...	...	...	...	...	6.675	7.225
Moline, Ill. *R3*	...	145	...	...	...	...	...	...
Pittsburg, Cal. *C7*	150	163	...	173	173	173	7.625	8.025
Portsmouth *P7*	...	...	...	...	...	...	...	...
Rankin, Pa. *A5*	131	140	...	...	...	153	6.675	7.075
So. Chicago *R3*	131	140	145	149	...	153	6.675	7.075
S. San Fran. *C6*	...	...	...	...	...	...	...	...
Sparrows Pt. *B3*	133	...	...	151	158	158	6.775	7.325
Struthers, O. *Y1*	...	...	...	...	...	...	...	...
Worcester *A5*	137	...	...	...	...	...	6.975	...
Williamsport, Pa. *S10*	...	...	...	...	...	...	...	...

Cut Nails, carloads, base $8.00 per keg (less 20¢ to jobbers), at Conshohocken, Pa. *(A2)*.

* Alabama City and So. Chicago don't include zinc extra. Galvanized products computed with zinc at 11.0¢ per lb.

WARE-HOUSES

Base price, f.o.b., dollars per 100 lb.

Cities	City Delivery Charge	Sheets: Hot-Rolled	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)	Strip: Hot-Rolled	Strip: Cold-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled	Bars: Cold-Finished	Alloy Bars: Hot-Rolled A 4615 As rolled	Alloy Bars: Hot-Rolled A 4140 Annealed	Alloy Bars: Cold-Drawn A 4615 As Rolled	Alloy Bars: Cold-Drawn A 4140 Annealed
Baltimore	$.20	6.20	7.64	7.81[3]	7.00	.....	6.85	6.98	6.86	8.17	.....	.....	.....	.....
Birmingham	.15	6.10	7.00	8.00[4]	6.30	.....	6.35	6.35	6.15	8.75	.....	.....	.....	.....
Boston	.20	6.89	7.83	9.23	7.13	9.23–9.35[2]	7.13	7.06	6.87	8.35	12.40	12.25–12.28	.....	14.75–14.78
Buffalo	.20	6.18–6.20	7.15	9.00–9.01	6.65–6.79	.....	6.65–6.68	6.55–6.59	6.35–6.65	7.70	.....	12.17–15.35	14.45	14.55
Chicago	.20	6.18	7.12	8.05	6.42	.....	6.33–6.38	6.46	6.28	7.30	.....	11.75	.....	14.25
Cincinnati	.20	6.46	7.14	8.42	6.67	.....	6.80	6.88	6.53	7.61	.....	12.12	.....	14.82
Cleveland	.20	6.18	7.12	7.90	6.58	.....	6.50	6.79	6.34	7.65	.....	11.89	.....	14.39
Denver	.....	7.95	8.85	10.10	8.20	9.55	7.95	7.95	8.05	9.05	.....	.....	.....	15.25–15.75
Detroit	.20	6.35–6.45	7.25–7.32	8.34	6.30–7.31	7.36–8.35	6.53–6.85	6.93	6.56–6.57	7.60–7.69	12.27	12.12	14.52	13.44–14.62
Houston	.20	7.15	7.85	.....	7.45	.....	7.20	7.35	7.45	9.85	.....	12.95	.....	.....
Kansas City	.20	6.85	7.79	8.72	7.09	.....	7.05	7.13	6.95	8.08	.....	.....	.....	.....
Los Angeles	.20	7.25	9.00	9.60	7.55	10.75–11.30	7.20	7.35	7.15–7.25	9.10–9.75	13.40–13.55	13.05	15.75	15.85–16.05
Memphis	.10	6.79	7.69	.....	6.90	.....	7.01	7.09	6.88	7.89	.....	.....	.....	.....
Milwaukee	.20	6.35	7.29	8.22	6.59	.....	6.50–6.55	6.63	6.45	7.57	.....	11.92	.....	14.42
New Orleans	.15	6.51–6.66	7.56	8.25	6.63–6.78	.....	6.73–6.88	6.81–6.96	6.60–6.75	8.42–8.57	.....	.....	.....	.....
New York	.30	6.78	7.75	9.02	7.16	9.05	6.99	6.90	7.06	8.53	11.99–12.29	10.39–12.14	14.04–14.54	12.64–14.64
Norfolk	.20	6.90	.....	.....	7.20	.....	7.15	7.20	7.20	8.50	.....	.....	.....	.....
Philadelphia	.25	6.53	7.55–8.25	8.35	7.02	.....	6.63	6.67	6.87	8.24	12.04	11.89	14.29	14.39
Pittsburgh	.20	5.95–6.18	6.82	8.30–8.60	6.20–6.55	.....	6.03–6.33	6.07–6.46	5.98–6.28	7.65	.....	11.45–11.75	.....	13.75–14.25
Portland	.10	8.00	9.80	9.95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salt Lake City	.20	9.05	10.80	10.65	9.35	.....	8.70	8.85	9.20	11.25	.....	.....	.....	.....
San Francisco	.15	7.35	8.70	9.90–10.15	7.60	10.35	7.20	7.25	7.15	9.75–9.85	13.55	12.80–13.05	15.50	15.55–16.05
Seattle	.20	8.15	8.70	9.95–10.10	8.02	.....	7.59	7.50	7.58	10.13	.....	13.40	.....	16.00
St. Louis	.20	6.48	7.42	8.35	6.72	.....	6.73	6.86	6.58	7.70	12.20	12.05	14.45	14.30–14.55
St. Paul	.15	6.84	7.78	8.71	7.08	.....	6.99	7.12	6.94	8.06	.....	12.19	.....	.....

Base Quantities (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets, for quantity.

Exceptions: (1)500 to 1499 lb. (2)20,000 lb or over. (3)450 to 1499 lb. (4)500 to 9999 lb.

C-R SPRING STEEL

Cents Per Lb. F.o.b. Mill	CARBON CONTENT 0.26–0.40	0.41–0.60	0.61–0.80	0.81–1.05	1.06–1.35
Bridgeport, Conn. *S7**	6.15	8.00	8.60	10.55	12.85
Carnegie, Pa. *S9*	.....	8.00	8.60	10.55	12.85
Cleveland *A5*	5.45	7.65	8.60	10.55	12.85
Detroit *D2*	6.05	8.25	8.85	.....	.....
New Castle, Pa. *B4*	5.80	8.00	8.60	.....	.....
New Haven, Conn. *D1*	.....	.....	.....	.....	.....
Sharon, Pa. *S1*	5.80	8.00	8.60	10.55	12.85
Trenton *R4*	.....	7.95	8.55	10.50	12.80
Weirton, W. Va. *W3*	5.80	8.00	8.60	10.55	12.85
Worcester, Mass. *A5*	5.75	7.95	8.90	10.85	13.15
Youngstown *C5*	.....	8.00	8.60	10.55	12.85

* Sold on Pittsburgh base.

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.	Elec. Weld C.D.
Babcock & Wilcox	2	13	30.08	36.28	26.51	31.98
	2½	12	40.51	48.86	35.70	43.07
	3	12	45.92	55.39	.....	49.73
	3½	11	53.60	64.65	48.13	58.06
	4	10	65.91	79.50	63.92	77.10
National Tube	2	13	.....	32.98	24.88	.....
	2½	12	36.82	44.41	33.50	.....
	3	12	42.52	51.28	38.69	.....
	3½	11	49.63	59.87	45.16	.....
	4	10	65.91	79.50	59.97	.....
Pittsburgh Steel	2	13	27.34	32.98	.....	.....
	2½	12	36.82	44.41	.....	.....
	3	12	42.52	51.28	.....	.....
	3½	11	49.63	59.87	.....	.....
	4	10	65.91	79.50	.....	.....

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RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Treated
Bessemer UI	4.325	5.20	5.275	....	....	....	....
Chicago R3	....	....	....	7.05	....	....	....
Cleveland R3	....	....	....	....	....	....	....
Ensley T2	4.325	5.20	....	....	....	....	....
Fairfield T2	....	5.20	....	....	....	5.125	....
Gary UI	4.325	5.20	....	....	....	5.125	....
Ind. Harbor I3	4.325	....	5.275	7.05	....	5.125	....
Johnstown B3	....	5.20	....	....	....	....	....
Joliet UI	....	5.20	5.275	....	....	....	....
Kansas City S2	....	....	....	7.30	....	....	11.00
Lackawanna B3	4.325	5.20	5.275	....	....	5.125	....
Lebanon B3	....	....	....	7.05	11.50	....	11.00
Minnequa C6	....	5.70	....	7.05	11.55	....	10.35
Pittsburgh R3	....	....	....	....	....	....	....
Pittsburgh O1	....	....	....	....	....	....	....
Pittsburgh P5	....	....	....	....	....	....	....
Pittsburgh J3	....	....	....	7.05	....	....	....
Pitt'g, Cal. C7	....	....	....	....	....	5.275	....
Seattle B2	....	....	....	7.55	....	5.275	11.50
Steelton B3	4.325	....	5.275	....	....	5.125	....
Struthers Y1	....	....	....	....	....	....	....
Torrance C7	....	....	....	....	....	5.275	....
Youngstown R3	....	....	....	7.05	....	....	....

LAKE SUPERIOR ORES

51.50% Fe; natural content, delivered lower Lake ports. Prices effective July 1, 1953 to end of season.

	Gross Ton
Openhearth lump	$11.15
Old range, bessemer	10.30
Old range, nonbessemer	10.15
Mesabi, bessemer	10.05
Mesabi, nonbessemer	9.90
High phosphorus	

Prices based on upper Lake rail freight rates, Lake vessel freight rates, handling and unloading charges, and taxes thereon, in effect on June 24, 1953. Increases or decreases after such date are for buyer's account.

COKE

	Net-Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$14.50 to $15.00
Foundry beehive (f.o.b. oven) Connellsville, Pa.	$16.50 to $18.00
Foundry, oven coke	
Buffalo, del'd	$28.08
Chicago, f.o.b.	24.50
Detroit, f.o.b.	25.50
New England, del'd	26.05
Seaboard, N. J., f.o.b.	24.00
Philadelphia, f.o.b.	23.95
Swedeland, Pa., f.o.b.	23.35
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	25.00
Cleveland, del'd	27.42
Cincinnati, del'd	26.56
St. Paul, f.o.b.	28.75
St. Louis, f.o.b.	26.00
Birmingham, del'd	22.21
Lone Star, Tex., f.o.b.	18.50

ELECTRODES

Cents per lb, f.o.b. plant threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
	GRAPHITE	
24	84	20.50
18, 20	72	20 00
12, 14	72	20.50
7 to 10	60	21.00
6	60	23.25
4	40	26.00
3	40	27.50
2½	30	28 00
2	24	42.50
	CARBON	
40	100, 110	8.95
36	110	8.95
30	110	8.95
24	110	8.95
20	72 to 84	9.10
17	90	8 95
14	72	9.10
10, 12	72	9.50
8	60	10.30
	60	10.55

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base, discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Nuts, Hot Pressed, Cold Punched—Sq.

	Pct Off List			
	Less Keg Reg.	K.	Less Keg Hvy.	K.
½ in. & smaller	+2	15	+2	18
9/16 in. & ⅝ in.	+7	11	+32*	+10*
¾ in. to 1½ in. inclusive	+8	10	+27**	+6**
1⅝ in. & larger.	+9	9	+27	+6

* 9/16 to ⅝ in.
** ⅞ to 1½ in.

Nuts, Hot Pressed—Hexagon

½ in. & smaller	11	26	8	23
9/16 in. & ⅝ in.	2	18	+20	net
¾ in. to 1½ in. inclusive	+6	12	+25	+4
1⅝ in. & larger.	+8	10	+25	+4

Nuts, Cold Punched—Hexagon

½ in. & smaller	11	26	8	23
9/16 in. & ⅝ in.	9	24	+2	15
¾ in. to 1½ in. inclusive	+1	16	+9	9
1⅝ in. & larger	+16	3	+20	net

Nuts, Semi-Finished—Hexagon

½ in. & smaller	22	36	14	28
9/16 in. & ⅝ in.	18	32	4	20
¾ in. to 1½ in. inclusive	8	23	+8	10
1⅝ in. & larger.	+14	5	+20	net
	Light			
7/16 in. & smaller	33	43		
½ in. thru ⅝ in.	26	37		
¾ in. to 1½ in. inclusive	18	30		

Stove Bolts — *Pct Off List*

Packaged, steel, plain finished	44½—10
Packaged, plain finish	25½—10
Bulk, plain finish**	59*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets — *Base per 100 lb*

½ in. & larger	$8.90
	Pct Off List
7/16 in. and smaller	30

Cap and Set Screws
(In bulk) — *Pct Off List*

Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	40
¾ in. thru 1 in. up to & including 6 in.	26
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat	43
¾ in. thru 1 in. up to & including 6 in.	33
Milled studs	17
Flat head cap screws, listed sizes	12
Fillister head cap, listed sizes	7
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	37

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	4	20
9/16 in. & ⅝ in. x 6 in. & shorter	5	21
¾ in. & larger x 6 in. & shorter	3	19
All diam. longer than 6 in.	+4	13
Lag, all diam. x 6 in. & shorter	12	27
Lag, all diam. longer than 6 in.	8	23
Plow bolts	30	..

REFRACTORIES

Fire Clay Brick — *Carloads, per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.25)	$99.30
No. 1 Ohio	92.40
Sec. quality, Pa., Md., Ky., Mo., Ill.	82.40
No. 2 Ohio	83.15
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.60)	14.40

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$99.30
Childs, Pa.	103.95
Hays, Pa.	105.10
Chicago District	122.40
Western Utah	116.55
California	122.85
Super Duty, Hays, Pa., Athens, Tex., Chicago	116.65
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	17.30
Silica cement, net ton, bulk, Hays, Pa.	19.60
Silica cement, net ton, bulk, Ensley, Ala.	18.45
Silica cement, net ton, bulk, Chicago District	18.45
Silica cement, net ton, bulk, Utah and Calif.	25.95

Chrome Brick — *Per net ton*

Standard chemically bonded Balt., Chester	$86.00
Burned, Balt., Chester	80.00

Magnesite Brick

Standard Baltimore	$109.00
Chemically bonded, Baltimore	97.50

Grain Magnesite — *8t. ⅝-in. grains*

Domestic, f.o.b. Baltimore in bulk fines removed	$64.40
Domestic, f.o.b. Chewalah, Wash., in bulk	38.00
in sacks	43.70

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	$13.75

FLUORSPAR

Washed gravel, f.o.b. Rosiclaire, Ill.
Price, net ton; Effective CaF_2 content:

72½%	$44.00
70% or more	42.50
60% or less	38.00

METAL POWDERS

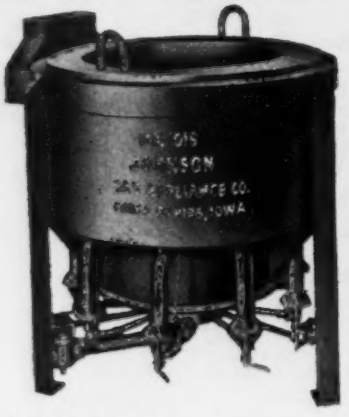
Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron, c.i.f. New York, ocean bags	11.25¢
Canadian sponge iron, del'd. in East	12.0¢
Domestic sponge iron, 98+% Fe, carloads lots	15.5¢ to 17.0¢
Electrolytic iron, annealed, 99.5+% Fe	44.0¢
Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe	60.0¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	53.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	83.0¢ to $1.48
Aluminum	31.5¢
Brass, 10 ton lots	30.00¢ to 32.25¢
Copper, electrolytic	43.50¢
Copper, reduced	43.50¢
Cadmium, 100-199 lb	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity, del'd	$3.50
Lead	21.75¢
Manganese	57.0¢
Molybdenum, 99%	$2.75
Nickel, unannealed	88.0¢
Nickel, annealed	95.0¢
Nickel, spherical, unannealed	92.0¢
Silicon	33.5¢
Solder powder	7.0¢ to 9.0¢ plus met. value
Stainless steel, 302	83.9¢
Stainless steel, 316	$1.10
Tin	14.04¢ plus metal value
Tungsten, 99% (65 mesh)	$5.85
Zinc, 10 ton lots	23.0¢ to 30.5¢

FAST MELTING QUICK RECOVERY

THE JOHNSON No. 1019

SOFT METAL MELTING FURNACE
Capacity — 1000 lbs. lead



A very efficient and economical furnace for melting lead, tin, zinc, pot metal, type metal, aluminum, etc. No blower required. Nine speedy JOHNSON direct jet bunsen burners deliver pot temperatures up to 1400° F. Assure quick recovery after reloading. Burners are equipped with separate shut-off valves permitting use of only as much gas as required to maintain melting temperatures. Durable construction. Heavily insulated to retain heat and reduce operating costs. Complete with removable cast iron pot and lifting hooks. Available with automatic temperature control at extra cost.

$340.00 F. O. B. Factory

JOHNSON Soft-Metal Melting Furnaces are also available in smaller sizes. Write for complete catalog.

JOHNSON GAS APPLIANCE CO. 598 E Avenue N. W., Cedar Rapids, Iowa

JOHNSON
FURNACES FOR INDUSTRY

Pete says the only thing that will shear his wife's biscuits is Columbia Buster Alloy Tool Steel.

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILL.

Producers of fine tool steels—High Speed Steels
Die Steels—Hot Work and Shock Resisting Steels
Carbon Tool Steels.

TOOL COLUMBIA STEELS

—Ferroalloy Prices—

(Effective Aug. 18, 1953)

Ferrochrome

Contract prices, cents per lb contained Cr, lump size, bulk, in carloads, delivered 65-72% Cr, 2% max. Si.

0.025% C	34.50	0.20% C	33.50
0.06% C	34.50	0.50% C	33.25
0.10% C	34.00	1.00% C	33.00
0.15% C	33.75	3.00% C	33.75
65-69% Cr, 4-9% C			34.75
62-66% Cr, 4-6% C, 6-9% Si			35.00

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.
High carbon type: 60-65% Cr, 1-4% Si, 4-6% Mn, 4-6% C.

Carloads	35.31
Ton lots	35.00
Less ton lots	39.50

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 3¢ for each additional 0.25% of N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.18
0.50% max. C	1.14
9 to 11% C	1.11

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)
Contract price, carloads, f.o.b. Niagara Falls, freight allowed, lump 4-in. x down, bulk 2-in. x down, 25.75¢ per lb of contained Cr plus 12.40¢ per lb of contained Si.
Bulk 1-in. x down, 25.90¢ per lb contained Cr plus 12.60¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, lump delivered.
30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	19.00
Ton lots	22.10
Less ton lots	23.60

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy lump, delivered.
16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.00
Ton lots	23.30
Less ton lots	23.30

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots	17.50
Less ton lots	19.50

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-43% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50
Less ton lots	17.75

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.50
Ton lots to carload packed	18.50
Less ton lots	20.00

Ferromanganese

Maximum contract base price, f.o.b. lump size:

Producing Point	Base Mn Content	Cents per lb (Contained Mn)
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	76-80%	13.15
		(Per ton of alloy)
Clairton, Pa.	74-76%	10.00
Johnstown, Pa.	74-76%	10.00
Sheridan, Pa.	74-76%	10.00

Add or subtract 0.1¢ for each 1% Mn above or below base content.
Briquets—delivered, 66 pct. Mn.

Carload, bulk	13.50
Ton lots, packed	14.05

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DROP FORGINGS

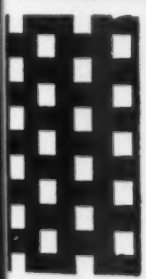
For maximum strength and accuracy of metal parts, Ritco Bright Finish Drop Forgings are outstanding. Smooth and free of flash, they are produced in steel or non-ferrous metals, in weights from ¼ lb. to 15 lbs. It pays to remember Ritco for drop forgings, special fasteners, and finished bolts with regular or heavy heads . . . also for machining and grinding.

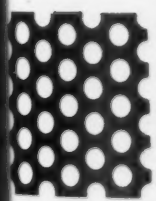
Send blueprints for free estimates. Rhode Island Tool Company, 148 West River St., Providence 1, Rhode Island.

RITCO

EXCLUSIVE NEW ENGLAND REPRESENTATIVES
FOR CLEVELAND CAP SCREWS

★ SERVING AMERICAN INDUSTRY SINCE 1834 ★





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IS OUR SPECIALTY

We are equipped to do perforating work for you on all metals including stainless and carbon steel, monel, copper, brass, bronze and aluminum —also plastic and other materials. Thickness as required from .003″ to .375″ with holes from .020″ in brass and .027″ in steel. Our fabricating facilities include rolling, forming, shearing, welding and assembling. Material to be perforated can be supplied either by us or by your company.

Let us know your requirements.

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New Orleans • New York • Philadelphia

1784

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PERFORATED METALS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

For Heavy Assemblies and Severe Vibration

REGULAR TYPE PALNUT TRADEMARK **LOCK NUTS**

provide more advantages than any other locking method

By using an ordinary nut to carry the load—plus a PALNUT Lock Nut on top to keep it tight—you have a completely vibration-proof, rugged assembly which stays trouble-free in severest service. Widely used on automotive, electrical and heavy machinery and equipment of all types, with distinct advantages over lock washers, jam nuts, cotter pins, self-retaining nuts.

- Absolute security
- Lower cost
- Easy tightening
- Fast assembly
- May be removed and re-used

Send for Bulletin #577
Include details of assembly, bolt size, etc. for free samples.

THE PALNUT COMPANY
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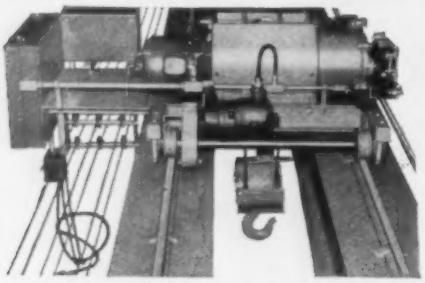
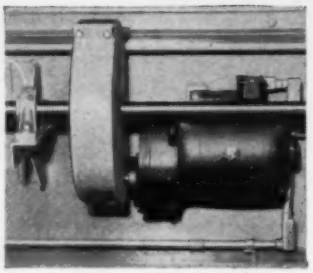
In Canada:
P. L. Robertson Mfg. Co., Ltd.
Milton, Ontario

Investigate the Economy of a EUCLID *Utility* CRANE





For intermediate demands in material handling, Euclid Utility Cranes meet all requirements.

Here for example, is a 54 ft. span double-girder crane in which the hoist is a standard Euclid unit of long proven merit. Geared head motors of widely accepted high quality are used to propel the bridge and the hoist trolley. Control is by push-buttons from the floor.

This construction provides a crane with a full safety factor of five that measures up to all demands in capacity, performance and serviceability; and also effects economies in first cost, in operation and maintenance.

Write us regarding your requirements.

EUCLID CRANES AND HOISTS Raise Profits

THE EUCLID CRANE & HOIST CO.

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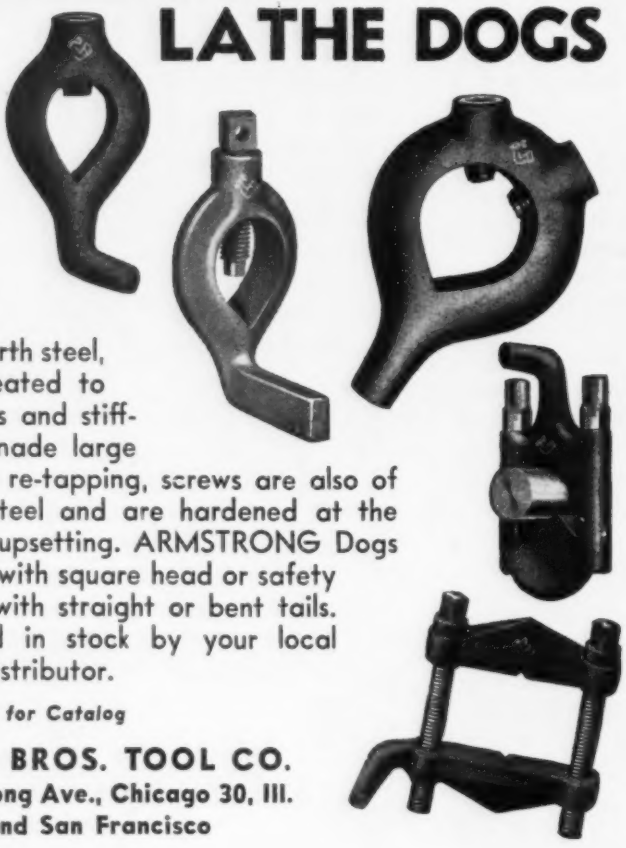
ARMSTRONG *Drop Forged* LATHE DOGS



ARMSTRONG Lathe Dogs give extra service because they are drop forged from selected open hearth steel, and are heat treated to extreme toughness and stiffness. Hubs are made large enough to permit re-tapping, screws are also of special analysis steel and are hardened at the point to prevent upsetting. ARMSTRONG Dogs come in 10 types with square head or safety headless screws, with straight or bent tails. They are carried in stock by your local ARMSTRONG Distributor.

Write for Catalog

ARMSTRONG BROS. TOOL CO.
5209 West Armstrong Ave., Chicago 30, Ill.
New York and San Francisco

—Ferroalloy Prices—

(Effective Aug. 18, 1953)

Spiegeleisen

Contract prices per gross ton, lump, f.o.b. Palmerton, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$84.00
19 to 21%	3% max.	86.00
21 to 23%	3% max.	88.50
23 to 25%	3% max.	91.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.
95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	36.00
Ton lots	38.00

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	31.50
Ton lots	33.50
Less ton lots	35.50
Premium for hydrogen-removed metal	1.50

Low-Carb Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn	30.00	31.85	33.85
0.07% max. C	27.95	29.80	31.80
0.15% max. C	27.45	29.30	30.85
0.30% max. C	26.95	28.80	30.80
0.50% max. C	26.45	28.30	29.85
0.75% max. C, 80-85% Mn, 5.0-7.0% Si	23.45	25.30	26.85

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb of contained Mn 21.50

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C deduct 0.2¢.

Carload bulk	11.40
Ton lots	13.00
Briquet contract basis carlots, bulk delivered, per lb of briquet	12.85
Ton lots, packed	14.50

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $95.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00. Add $1.00 per ton for each additional 0.50% Si up to and including 17%. Add $1.45 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	18.00
97% Si, 1% Fe	18.50

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 2 lb Si briquets.

Carloads, bulk	8.90
Ton lots	9.85

Electric Ferrosilicon

Contract price, cents per lb contained Si, lump, bulk, carloads, delivered.

25% Si	20.00	75% Si	14.30
50% Si	12.40	85% Si	15.55
65% Si	12.60	90.95% Si	17.90

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.65

Ferrovanadium

35-55% contract basis, delivered, per pound, contained V.

Openhearth	$3.00-$3.10
Crucible	3.10-3.20
High speed steel (Primos)	3.20-3.35

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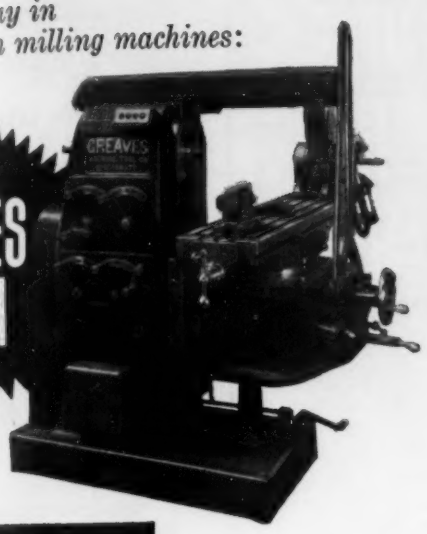
your best buy in modern milling machines:

GREAVES NO. 2-H



Plain or Universal

- **Offers every modern milling machine advantage:** 18 spindle speeds 25 to 1250 rpm, 18 feeds ½" to 30" per minute, rapid traverse, Timken bearings and many others.

You can't buy a better combination of simplicity, rugged construction, ease of operation, accuracy and production speed.

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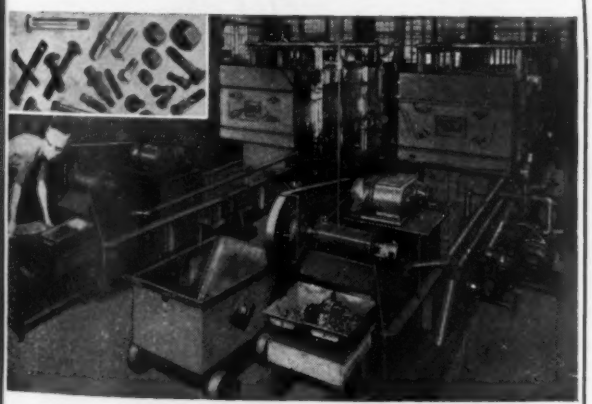

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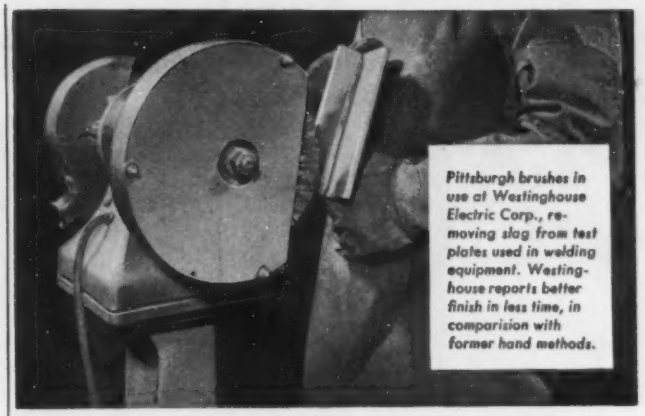

Pittsburgh brushes in use at Westinghouse Electric Corp., removing slag from test plates used in welding equipment. Westinghouse reports better finish in less time, in comparision with former hand methods.

Replace hand finishing with power-driven Pittsburgh Brushes for

Better Cleaning
Lower Labor Costs
Fewer Rejects

—as these companies did:

Removal of imbedded slag in welding test plates formerly was done by hand at the Westinghouse Electric Corp., Trafford, Pa., using a wire brush and welder's hammer. Pittsburgh brushes, powered by a direct-drive ½ h.p. motor, now remove more slag in less time, and produce a better finish. In addition, Westinghouse reports their Pittsburgh brushes "stand up better than average in use."

Complete cleaning of dried concrete, rust and scale from steel frames used in concrete forming is essential prior to re-using the forms. Pittsburgh wire brushes were installed at the Universal Form Clamp Co., Chicago. Working on a conveyor-fed machine, the Pittsburgh brushes now remove all foreign material at a rate of 50 pieces per hour, replacing former laborious hand brushing and scraping.

De-scaling preheated bar stock at the Dominion Forge & Stamping Co., Ltd., Canada, was formerly done by hand scraping. This never did a complete job, and inclusions resulted which produced defective forgings. Pittsburgh brushes, on specially-designed machines, now do the job, and have "increased efficiency, decreased the amount of scrap, improved work quality, and saved labor."

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Write today for a free copy of our booklet that shows, through actual case histories, how Pittsburgh cuts brushing costs. Address: PITTSBURGH PLATE GLASS COMPANY, *Brush Div.*, Dept. W-10, 3221 Frederick Avenue, Baltimore 29, Maryland.

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Every facility for large scale metal fabricating: — Heavy plate shop equipment — Rolls — Shears — Bending furnaces. Stress relieving furnace 33'x18'x16' up to 2100°F. Machine shop for facing, turning, and boring. 50 ton capacity gray iron foundry. Deep-water transportation on one side, the Pennsylvania RR on the other. Talk to our development engineers.

Metals Fabrication Division
THE PUSEY AND JONES CORP.
504 Front Street, Wilmington, Del.
Established 1848

PUSEYJONES

Ferroalloy Prices

(Effective Aug. 18, 1953)

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
Carloads 9.30
Ton lots 11.30

Calcium molybdate, 46.3-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.15

Ferrocolumbium, 50-60% 2 in. x D contract basis, delivered per pound contained Cb.
Ton lots $6.40
Less ton lots 6.45

Ferro-Tantalum-Columbium, 20% Ta, 40% Cb, 0.20% C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta $4.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo $1.32

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton $65.00
10 tons to less carload $75.00

Ferrotitanium, 40% regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots 1.55

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload, per net ton $177.00

Ferrotungsten, ¼ x down, packed, per pound contained W, ton lots, f.o.b. $4.45

Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. $1.14
bags, f.o.b. Washington, Pa. Langeloth, Pa. $1.12

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
Carload, bulk lump ..... 14.50¢
Ton lots, bulk lump ..... 15.75¢
Less ton lots, lump ..... 16.25¢

Vanadium Pentoxide, 86-89% V_2O_5 **contract basis, per pound contained** V_2O_5 ..... $1.28

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
Ton lots ..... 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.
Carload, bulk ..... 8.00¢

Boron Agents

Boreal, contract prices per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B, 3-4%, Si, 40-45%, per lb contained B ... $5.25

Bortam, f.o.b. Niagara Falls
Ton lots, per pound ..... 45¢
Less ton lots, per pound .... 50¢

Corbortam, Ti 15-21%, B, 1-2%, Si, 2-4%, Al, 1-3%, C, 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.
Ton lots, per pound ..... 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots $1.20
F.o.b. Wash., Pa.; 100 lb up
10 to 14% B ..... .85
14 to 16% B 1.20
19% min. B 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.
No. 1 ..... $1.00
No. 6 ..... 68¢
No. 79 ..... 50¢

Manganese - Boron, 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd
Ton lots $1.46
Less ton lots 1.57

Nickel - Boron, 15-18%, B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered
Less ton lots $2.05

Silcaz, contract basis, delivered.
Ton lots ..... 45.00¢

WHAT'S THE BEST WAY TO APPLY ZINC PHOSPHATE COATINGS TO STEEL?

Oakite CrysCoat HC does a fine job

In preparation for painting, Oakite CrysCoat HC puts an excellent zinc phosphate coating on steel products. Weighing more than 200 milligrams per square foot, this coating more than meets U. S. Government Specifications:

JAN-C-490, Grade 1
57-O-2C, Type 2, Class C
PA-PD-191, Rev. A

Applied in tanks or washing machines, the CrysCoat HC Process has five big advantages:

1 The heavy coating forms a strong foundation for paint. *See page 5 in free booklet.*

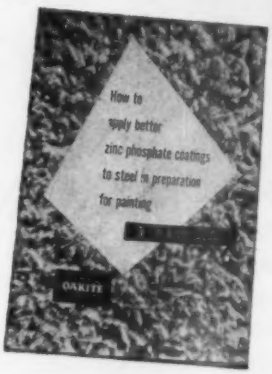
2 The coating gives good protection against corrosion. *See page 7.*

3 The process is very easy to control. *See page 9.*

4 Little sludge or scale is produced. *See page 10.*

5 Stainless steel is not necessary for all parts of the equipment. *See page 11.*

FREE For illustrated booklet "*How to apply better zinc phosphate coatings to steel*", write to Oakite Products, Inc., 30H Rector St., New York 6, N. Y.



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STOCK DELIVERY

PORTER McLEOD

16" Geared Head Quick Change Screw Cutting Engine Lathes
6'—8'—10' Lengths

PARTIAL SPECIFICATIONS

Distance between centers (6'): 36"; (8'0): 60"; (10'): 84". Hole through spindle: 1-5/16". 12 spindle speeds, 23.6 to 1000 RPM. Anti-friction bearing headstock. 5 HP motor.

Sales territories open

Rigid and vibration-free, the Porter McLeod lathe is the product of a 60 year old company. More than 2500 are in service! All headstock gears are made of specially hardened chrome nickel steel. The spindle, also of chrome nickel steel, is forged and bored from solid stock, mounted front and rear on Timken roller bearings.

Many desirable features are incorporated in this precision lathe which is distributed exclusively by MOREY . . . Includes tailstock of cutaway pattern, taper gibbed compound rest. Lead screw has a chasing dial allowing operator to catch any thread at the beginning of each successive cut, while the feed rod is equipped with an adjustable automatic stop.

Write us for detailed catalog!

MOREY *for machine tools!*

MOREY MACHINERY CO., INC.
Manufacturers • Merchants • Distributors
410 BROOME STREET • NEW YORK 13, N. Y.
CANAL 6-7400 • CABLE ADDRESS: WOODWORK, N. Y.

Talide

(TUNGSTEN CARBIDE)

THE WORLD'S HARDEST METAL

1 Many times more durable than steel, it adds years of life to the wearing edges of tools, dies, machinery and equipment.

2 Hard as a diamond and almost indestructible, it triples output per man and per machine.

3 New heavy-metal alloy (17.5 specific gravity) has proven best for atomic radiation screening and for applications requiring maximum weight in minimum space.

Write for Catalog 52-G

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SINTERED CARBIDES — TALIDE — HOT PRESSED CARBIDES

There's a reason 76%* of all popularly-priced Tool and Cutter Grinders sold in 1952 were "Knock-Outs"

MODEL B860

Will do anything that machines costing 2 or 3 times more will do . . . yes and in less time.

Distributed Only Through Franchise Dealers

K. O. LEE CO.
ABERDEEN, S. D.

*Sales Statistics Furnished on Request

good machinery

REBUILT

to exacting standards

18" x 54" centers MONARCH Lathe, motor in base, taper attachment, chucks
27" x 12' centers LODGE & SHIPLEY Selective Geared Head Lathe, AC-MD
28" x 15' centers BERTRAM (Niles patterns) Timesaver Engine Lathe, 2 carriages, rapid traverse, AC-MD, 1943
36" x 12' centers AMERICAN Heavy Duty 16 Speed Geared Head Lathe, AC-MD
42" x 96" centers NILES Timesaver Heavy Duty Lathe, 42" swing over ways, rapid traverse, anti-friction head, AC-MD
60" x 20' NILES BEMENT POND Geared Head Engine Lathe, rapid traverse
No. 4L GISHOLT Turret Lathe, bar & chuck, new 1945
42" BULLARD Vertical Turret Lathe, extra high column, AC-MD
62" BULLARD Vertical Boring Mill, 2 swivel rail heads, power rapid traverse, AC-MD
No. 2 CINCINNATI Vertical Mill, dial type, new 1945
No. 3 ROCKFORD Combination Vertical & Horizontal Mill, 10 HP, AC-MD
No. 3-24 CINCINNATI Plain Hydromatic Mill, AC-MD
No. 4 KEARNEY & TRECKER Plain Horizontal Mill, No. 50 taper, motor in base, rapid traverse
No. 4 CINCINNATI High Power Vertical Mill, No. 50 taper, power rapid traverse, AC motor
No. 4H KEARNEY & TRECKER Vertical Mill, new 1944
5" bar KEYSTONE Floor Type Horizontal Boring Mill, AC-MD, new 1943
14" x 48" MATTISON Hydraulic Surface Grinder, magnetic chuck, AC motors, 1940
2SA HEALD Rotary Surface Grinder, 24" diameter magnetic chuck, AC-MD
No. 6G SELLERS Drill Grinder, new 1941
1½" LANDIS Bolt Threader, leadscrews, AC-MD
75 Ton HENRY & WRIGHT Double Crank Dieing Machine, roll feed & scrap cutter
600 Ton CHAMBERSBURG Wheel Press, cast steel frame, inclined, AC-MD
30" MORTON, Hydraulic Keyseater, new 1942
48" x 48" x 10' NILES Double Housing Planer, 2 rail heads, 1 side head, power rapid traverse
48" widened to 69" x 12' DETRICK & HARVEY Double Housing Planer, box table, DC reversing motor drive

O'Connell MACHINERY CO., of BUFFALO, n. y.
1693 GENESEE ST.

The Clearing House

NEWS OF USED AND REBUILT MACHINE

Look for Upturn . . . Along with used machine tool dealers across the nation, Chicago's machinery men were looking for a full upturn in machinery sales and a few even reported their own business as looking a little better. But for most, the fall upturn hadn't shown up yet. No one was fattening up his inventory for a fall killing.

As one machine tool man put it, "I'm looking for an upturn in the fall, like everybody else, but I don't really know why it should go up."

Vacation Lull . . . A few ventured explanations. Used machine tool business, they say, is becoming cyclical. The big machinery buyers lay off during the summer vacation period. And when that ends, they have a slight backlog of purchases to make and replacement machines to install.

Result is that they do an increased fall business to make up for the summer lull. Whatever the case, most dealers were not increasing their inventories, and some were even waiting to work off an inventory surplus. Buying in the past few months as used machine tool prices fell, some dealers overstretched and now wish to work off this accumulation.

While the market continues toughly competitive, a number of small buyers are in circulation who don't seem to be bothered by the current tight credit situation. If anything, the latter may have encouraged their purchases of used, rather than new, machine tools. Also, the dip of used tool prices may have encouraged them.

Await Survey Results . . . Dealers are awaiting the results of the MDNA freight cost survey with considerable interest. The survey may cover a maximum of 250 MDNA members, and a tentative deadline has been set for final returns at Aug. 31.

The survey, probably the m
detailed attempted thus far,
ers average volume of mach
tools shipped (crated and
crated), average weight, aver
rail costs by both rail and tr
the amount of freight claims
proved, amount of weight ship
in LCL and carload lots by tr
and by rail, increase of busin
by percentage in 1952 as c
pared with those delivered
skids only, how current frei
costs affect prices when in c
petition with new tools, and
effect of freight costs on tr
generally, particularly where l
hauls must be made, to list so
of the major questions.

Scrap Presses . . . As one MD
member has pointed out, a pr
is heavy and brings a low pr
compared with a milling machi
yet the press may represent
considerably greater freight c
There are reports that so
presses in out-of-the-way lo
tions have even been scrapped
view of current low prices a
high freight costs, because ha
ing costs would not justify selli
the press.

Sheet metal equipment was
ginning to pick up slightly.
shocker to most was an occasion
report that demand for Germ
tools and some English tools w
enjoying a slight upturn.

Defense Cutbacks . . . In D
troit the trade is eyeing appr
hensively the progressive cu
backs in line for tank and au
motive defense orders. Befo
next spring the rate of spendi
will be sliced from $160 milli
a month to about $50 million.

Much of the used machine
business here is in production m
chinery and the cutbacks can
help but have a serious effect
the market. A number of cutbac
in automotive production will al
eliminate some of the mark
among both automotive plan
proper and their suppliers.

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